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PAPERS AND PROCEEDINGS

OF THE

Sixtieth Annual Meeting

OF THE

AMERICAN ECONOMIC ASSOCIATION

Chicago, Illinois, December 28-31, 1947

Edited by the Secretary of the Association

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PROGRAM OF THE SIXTIETH ANNUAL MEETING OF THE AMERICAN ECONOMIC ASSOCIATION

Chicago, Illinois, December 28-31, 1947

The program is the responsibility of the President of the Association. President Paul H. Douglas arranged for joint sessions with the American Finance Association, the Econometric Society, and the Economic History Association, as well as with Section K of the American Association for the Advancement of Science. These joint meetings and special luncheons contributed to the statisfaction of those with special interests, tastes, and needs. At the same time an effort was made to integrate the program around two of the most important present-day problems of economics; namely, (1) Competition, Imperfect Competition, Oligopoly, and Monopoly, and (2) The Economic and Monetary Theories of J. M. Keynes. As is indicated in the program, the theoretical issues involved in each topic were discussed on the first day, while factual and statistical material bearing on points which are at issue in both fields was presented on the second day. On the third day, issues of public policy in both of these areas were discussed. Every effort was made to have all major points of view and schools of thought represented and to provide time at each session for informal discussion from the floor.

A third theme considered was the theory of production. This was treated in the Presidential Address on Monday night and in the Wednesday morning joint session with Section K of the A.A.A.S. The Econometric Society also considered this issue at separate meetings.

The dinner meeting on December 28 was a significant occasion. It marked the inauguration of the Francis A. Walker and John Bates Clark awards. Facsimiles of these medals appear as a frontispiece to this volume, together with conditions of the awards and President Douglas' citation to the recipients.

It should hardly be necessary to reiterate that the purpose of the American Economic Association is to encourage freedom of discussion and that the Association as such does not assume any responsibility for the opinions or views expressed by those who participate in its meetings. We trust also that readers may take it for granted that no one but the author is responsible for the contents of his paper. Hence the disclaimer, which often appears as a footnote, to the effect that the opinions expressed do not necessarily reflect the views of the agency or institution with which the author is affiliated, is omitted in this volume.

Saturday, December 27, 1947

2:00 P.M. *Meeting of the Executive Committee*

Sunday, December 28, 1947

10:00 A.M. *The Economic Theory of Imperfect Competition, Oligopoly, and Monopoly*
Chairman: Raymond T. Bye, University of Pennsylvania
Papers: H. Gregg Lewis, University of Chicago; Oskar Morgenstern, Princeton University
Discussion: William Jaffé, Northwestern University; Martin Bronfenbrenner, University of Wisconsin; Harlan L. McCracken, Louisiana State University; David McCord Wright, University of Virginia

2:30 P.M. 1. *The Role of Monopoly in the Colonial Trade and Expansion of Europe*
(Joint session with the Economic History Association)
Chairman: Carter Goodrich, Columbia University
Papers: Earl J. Hamilton, University of Chicago; Abbott Payson Usher, Harvard University
Discussion: Harold A. Innis,[1] University of Toronto; John G. B. Hutchins, Cornell University; Dudley Dillard, University of Maryland; Lawrence A. Harper, University of California

2. *A Consideration of the Economic and Monetary Theories of J. M. Keynes*
Chairman: Frederick S. Deibler, Northwestern University
Papers: Lorie Tarshis, Stanford University; John H. Williams, Harvard University
Discussion: Lester V. Chandler, Amherst College; Clark Warburton, Federal Deposit Insurance Corporation; Richard M. Bissell,[1] Massachusetts Institute of Technology; Melvin W. Reder, Carnegie Institute of Technology.

[1] No manuscript received.

6:30 P.M. *Dinner Meeting* (Joint session with Section K, American Association for the Advancement of Science)
Chairman: Paul H. Douglas, University of Chicago
Speaker: The Honorable Ralph E. Flanders, Member of Congress

Monday, December 29, 1947

8:30 A.M. *Breakfast Session*
Chairman: D. Gale Johnson

10:00 A.M. 1. *The Progress of Concentration in Industry*
Chairman: Leverett S. Lyon, Chicago Association of Commerce
Papers: Harrison F. Houghton, Federal Trade Commission; Raymond Vernon, United States Department of State
Discussion: Rufus S. Tucker, General Motors Corporation; George W. Stocking, Vanderbilt University; Horace M. Gray, University of Illinois; Vernon A. Mund, University of Washington

2. *Keynesian Economics: The Prospensity to Consume and the Multiplier* (Joint session with the Econometric Society)
Chairman: Walter F. Willcox, Cornell University
Papers: James Deusenberry,[1] Harvard University; Arthur Smithies, Bureau of the Budget
Discussion: George Garvy, Federal Reserve Bank of New York; George M. Kuznets,[1] University of California; Samuel M. Cohn, Bureau of the Budget

3. *American Aid to Europe* (Joint session with the American Finance Association)[2]
Chairman: Joseph S. Davis, Stanford University
Papers: Seymour E. Harris, Harvard University; Calvin B. Hoover, Duke University
Discussion: B. U. Ratchford, Duke University; Benjamin H. Beckhart, Columbia University; Charles P. Kindleberger, United States Department of State

12:30 P.M. *Luncheon Meeting*
Chairman: Sumner H. Slichter, Harvard University
Speaker: Edwin E. Witte, University of Wisconsin

2:30 P.M. 1. *Does Large-Scale Enterprise Result in Lower Costs?*
Chairman: Ray B. Westerfield, Yale University
Papers: John M. Blair, Federal Trade Commission; Joel P. Dean, Columbia University
Discussion: Kenneth E. Boulding, Iowa State College; Harold H. Wein,[1] United States Department of Justice; W. Blair Stewart, Reed College; Henry B. Arthur, Swift and Company

2. *Keynesian Economics: Savings, Investment, and Wage Rates* (Joint Session with Econometric Society)
Chairman: Frederick C. Mills, Columbia University
Papers: Charles F. Roos, Econometric Institute; Homer Jones, Committee for Economic Development; John T. Dunlop, Harvard University
Discussion: Morris A. Copeland, Board of Governors of the Federal Reserve System; Leonid Hurwicz,[1] Iowa State College; Robert A. Gordon, University of California

8:00 P.M. *Presidential Address*[3]
Chairman: Thomas Nixon Carver, Harvard University
Paul H. Douglas, American Economic Association

10:00 P.M. *Smoker for All Members*

Tuesday, December 30, 1947

10:00 A.M. 1. *The Sherman Act and the Enforcement of Competition*
Chairman: Frank A. Fetter, Princeton University

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[2] The papers presented at this session are printed in the February, 1948, number of the *Journal of Finance.*

[3] Published in the March, 1948, issue of the *American Economic Review.*

Papers: Wendell Berge, Posner, Berge, Fox & Arent; The Honorable Estes Kefauver, Member of Congress
Discussion: Corwin D. Edwards, Northwestern University; Myron W. Watkins, Twentieth Century Fund; Fred I. Raymond, Chicago, Illinois; Ben W. Lewis, Oberlin College

2. *Fiscal Policy in Prosperity and Depression*
Chairman: Frederic B. Garver, University of Minnesota
Papers: Richard A. Musgrave, Board of Governors of the Federal Reserve System; Charles O. Hardy, Joint Congressional Committee on the Economic Report
Discussion: Walter S. Salant, Council of Economic Advisers; Walter E. Spahr, New York University; William S. Vickrey, Columbia University; Harold M. Groves, University of Wisconsin

3. *Transportation and Public Utilities*
Chairman: Clyde O. Ruggles, Harvard University
Papers: Stuart Daggett, University of California; James C. Bonbright, Columbia University
Discussion: Lewis C. Sorrell,[1] University of Chicago; Ralph L. Dewey, Ohio State University; Martin G. Glaeser,[1] University of Wisconsin; Horace M. Gray, University of Illinois

12:30 P.M. *Luncheon Meeting* (Joint session with Economic History Association)
Chairman: Frank D. Graham, Princeton University
Speaker: Orville J. McDiarmid, United States Department of State

2:30 P.M. 1. *Patent Policy*
Chairman: I. L. Sharfman, University of Michigan
Papers: Floyd L. Vaughan, University of Oklahoma; William H. Davis, President's Committee on Patent Policy
Discussion: George E. Folk, National Association of Manufacturers; Alfred E. Kahn, Cornell University; John A. Dienner, Chicago, Illinois; Frank B. Jewett, Former President of Bell Telephone Laboratories

2. *Problems of Timing and Administering Fiscal Policy in Prosperity and Depression*
Chairman: James E. Moffatt, Indiana University
Papers: Everett E. Hagen, Bureau of the Budget; Albert G. Hart, Columbia University
Discussion: John K. Galbraith, *Fortune Magazine;* Benjamin H. Higgins, McGill University; Wladimir S. Woytinsky, Social Security Board; O. H. Brownlee, Carnegie Institute of Technology

3. *Transportation and Public Utilities*[2]
Chairman: Clyde O. Ruggles, Harvard University
Paper: M. H. Waterman, University of Michigan
Discussion: James K. Hall, University of Washington; C. Emery Troxel, Wayne University

5:00 P.M. *Annual Business Meeting*

7:30 P.M. *Dinner Meeting*
Chairman: Alvin S. Johnson, New School for Social Research
Speaker: John Ise, University of Kansas

Wednesday, December 31, 1947

9:30 A.M. *Meeting of the Executive Committee*

10:00 A.M. *Symposium on the Determinants of National Productivity* (Joint session with Section K, American Association for the Advancement of Science)
Chairman: Benjamin H. Williams, Industrial College of the Armed Forces
Papers: Ernest Olson,[4] Board of Governors of the Federal Reserve System; J. Frederic Dewhurst, Twentieth Century Fund
Discussion: Ernest Doblin, Statistical Office of the United Nations; D. B. Shimkin, Institute for Advanced Studies; Solomon Fabricant, New York University and National Bureau of Economic Research

[4] On account of the close relationship of this paper to Professor Douglas' Presidential Address, it is being published in this volume. Other papers in this session are to be published elsewhere.

INAUGURATION OF THE FRANCIS A. WALKER AND JOHN BATES CLARK AWARDS

In 1945 President J. S. Davis appointed a Committee on Honors and Awards "to inquire into the types, purposes, and effects of systems of honors and awards maintained for various American scientific, engineering, and professional societies and to explore the desirability of instituting a specific scheme in the American Economic Association." The character of this charge indicates that the idea of establishing awards of some sort was not a new idea; nor were the findings and recommendations found in the 1945 committee's excellent report such as to suggest a single answer to the problem of recognizing distinction. (See *Papers and Proceedings,* May, 1945, pages 494-500.)

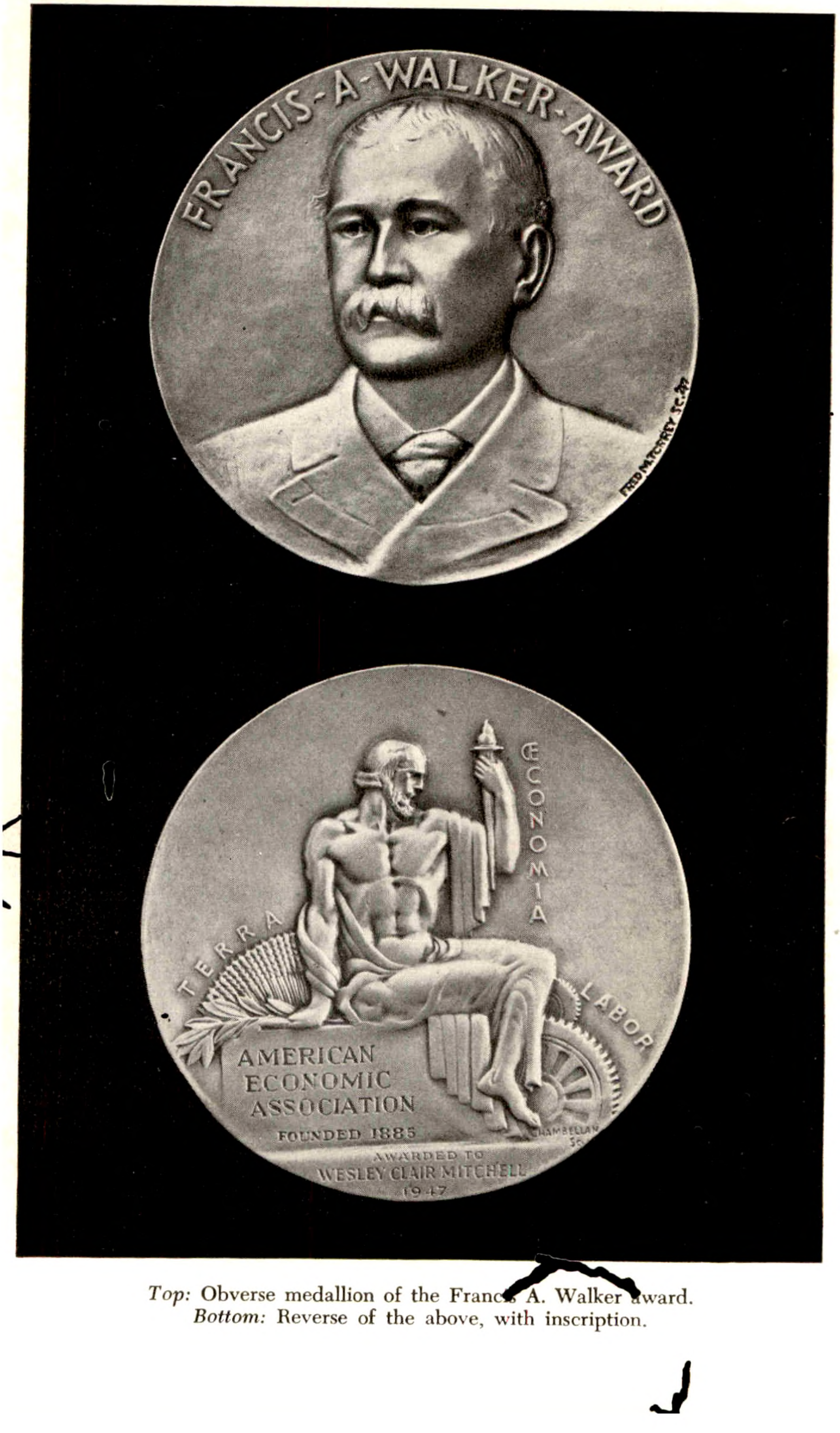
After long and careful consideration the Executive Committee of the Association this year decided to establish two awards to honor economists who have made contributions of the highest distinction to the main body of economic thought and knowledge; namely, the Francis A. Walker and the John Bates Clark medals. The Francis A. Walker silver medal is "to be awarded not more frequently than once every five years to the living economist who in the judgment of the awarding body has, during his career, made the greatest contribution to economics." This medal is named after the first President of the American Economic Association, Francis A. Walker—soldier, statistician, administrator, and economist—who did much in the early days to give stature to our subject in this country. The John Bates Clark bronze medal is "to be awarded biennially to that American economist under the age of forty who is adjudged to have made a significant contribution to economic thought and knowledge." This medal was named after the third President of the American Economic Association, a forceful and productive scholar and founder of what some students of economic thought would call an American school of economics.

It was decided to make an initial award of both medals this year and a Committee of Selection, representative of various sections of the country and of different schools of thought, was appointed: Frederick C. Mills, Columbia University, Chairman; Raymond T. Bye, University of Pennsylvania; Calvin B. Hoover, Duke University; Frederic B. Garver, University of Minnesota; Theodore W. Schultz, University of Chicago; and Stuart Daggett, University of California. This committee took its job very seriously, prepared a large panel of names, and, after studying their records and writings, winnowed the number to from three to five for each award. These names were then submitted to an electoral college of eighteen (the members of the Committee on Honors and Awards and of the Executive Committee), following a procedure similar to that used in electing the President of our Association. The choices thus represent a consensus of persons qualified to speak for our profession.

The distinguished sculptor, Fred M. Torrey, formerly associated with Lorado Taft, was commissioned to prepare the bas-reliefs of Francis A. Walker and John Bates Clark. These serve as the obverse of the respective medals, the reverse of each being the seal of the Association which was originally designed some years ago for the Davis Rich Dewey medal. The medals were produced by the Medallic Art Company, of New York City.

The presentation of these two medals was made at a dinner meeting of the Association held at the Knickerbocker Hotel, Chicago, on December 28, 1947. President Paul H. Douglas presided at this meeting and conferred the honors in the following words:

> The Francis A. Walker medal is being awarded to the world's foremost student of business cycles whose massive work on this subject a third of a century ago opened up a new world for investigation in which he has continued to be the foremost explorer; patient and untiring scholar and master of the inductive method who operates with the objectivity of a physical scientist; born on the banks of the Illinois; educated in this city; teacher on


FRANCIS-A-WALKER-AWARD
FRED M. TORREY SC.
ŒCONOMIA
TERRA
LABOR
AMERICAN
ECONOMIC
ASSOCIATION
FOUNDED 1885
CHAMBELLAN SC.
AWARDED TO
WESLEY CLAIR MITCHELL
1947

Top: Obverse medallion of the Francis A. Walker award.
Bottom: Reverse of the above, with inscription.

JOHN·BATES·CLARK·AWARD
ŒCONOMIA
TERRA
LABOR
AMERICAN ECONOMIC ASSOCIATION
FOUNDED 1885
AWARDED TO
PAUL A. SAMUELSON
1947

Top: Obverse medallion of the John Bates Clark award.
Bottom: Reverse of the above, with inscription.

the western and eastern shores of the continent. It is my pleasure to confer the greatest honor in American economics upon Wesley Clair Mitchell of Columbia University.

It is now my happy privilege to confer the John Bates Clark medal upon a brilliant economist who mastered at an early age both mathematics and economic theory; has made extraordinarily penetrating contributions to the theory of employment, production, distribution, and value; and whose recent book stamps him as one of the masters of our craft. With an amazing production record behind him, he faces the future with even greater achievements before him. . . . Paul A. Samuelson, of the Massachusetts Institute of Technology, the university which Francis A. Walker loved and of which he was President. I feel that from somewhere in Valhalla that mighty figure is beaming with happiness.

THE purpose of the American Economic Association, according to its charter, is the encouragement of economic research, the issue of publications on economic subjects, and the encouragement of perfect freedom of economic discussion. The Association as such takes no partisan attitude, nor does it commit its members to any position on practical economic questions. It is the organ of no party, sect, or institution. Persons of all shades of economic opinion are found among its members, and widely different issues are given a hearing in its annual meetings and through its publications. The Association, therefore, assumes no responsibility for the opinions expressed by those who participate in its meetings.

JAMES WASHINGTON BELL
Secretary

THE ECONOMIC THEORY OF IMPERFECT COMPETITION, OLIGOPOLY, AND MONOPOLY

SOME OBSERVATIONS ON DUOPOLY THEORY

By H. Gregg Lewis
University of Chicago

In spite of the fact that the literature on duopoly and oligopoly goes back over a hundred years there is not now a duopoly theory to which economists generally subscribe. In this paper I shall examine the stability of the equilibria implied by several of the theories advanced in the literature and shall set forth some criteria for stable duopoly equilibrium.

It will be sufficient to study a simplified version of the duopoly problem. Consider two firms of approximately the same size producing a single product which I assume they sell to competitive buyers. Let these two products, though not necessarily identical, be relatively good substitutes.[1] For simplicity I assume that the costs of each firm depend only on that firm's output. In order to avoid carry-over complications I assume that the output of each product is equal to its sales. The problem then is to find the pair (or pairs) of outputs of the two products which under given cost and demand conditions the two firms will have no incentive to change.

If the duopolists are in explicit collusion and are not prevented from compensating each other, the solution clearly is the monopoly solution. For suppose that the duopolists were to settle at an output point that is not the monopoly solution. Either firm then could gain by buying out the other at a price yielding the seller a higher income than formerly he received. Even if outright purchase is excluded, one of the firms always can gain by compensating the second for any loss the latter incurs in moving to the monopoly point. The monopoly solution thus deserves special consideration as a solution of the duopoly problem. For no other solution can be a stable solution unless outright purchase and compensations are ruled out. Or, to put it another way, only the monopoly solution provides no incentive for collusion and merger or outright purchase. One exception to this proposition should be mentioned. The foregoing argument will not hold if either firm is motivated by some end other than profit.

The diversity of points of view in the literature has arisen, however, not in the analysis of collusive duopoly, but in the analysis of the case in which compensations and purchase effectively are prohibited. It seems reasonable to expect that the outlawing of collusion would widen the range of stable duopoly solutions beyond that of the monopoly solution. But the prohibition surely does not extend the range to any output point such that both firms can benefit from a displacement. Failure to move from such a point implies either lack of knowledge of the possibility of mutual gain or motivations other than profit.

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[1] By "relatively good substitutes" I mean than an increase in the output of one product, the output of the other remaining constant, will reduce significantly the demand price of the second.

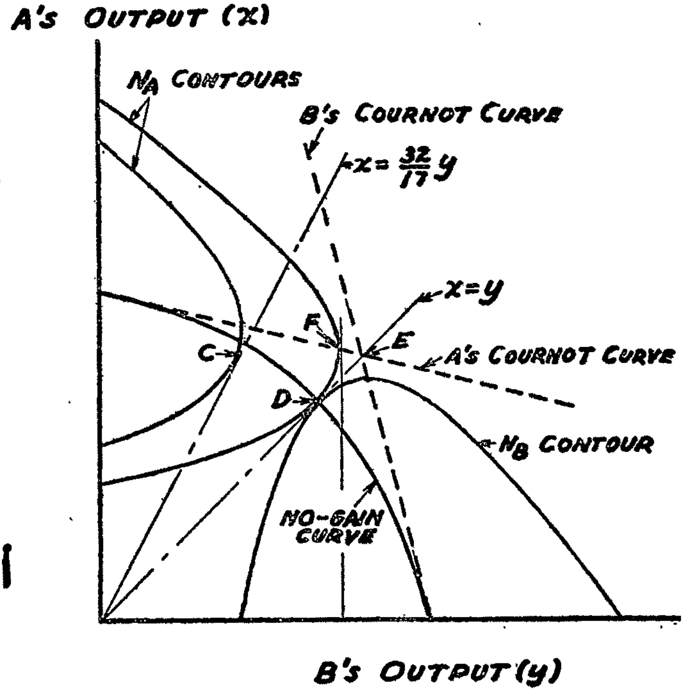

FIGURE 1

Consider then the set of output points which are stable in the sense that no displacement from any point in the set to any other point will benefit both firms. The monopoly solution clearly is among these points. These points and only these points are located on a curve which I shall call the "no mutual gain" curve or, for short, the "no-gain" curve.

It is not difficult to determine the no-gain curve from the cost and demand schedules. The excess of each firm's total receipts over its total variable costs, that is, its net receipts, depends both on its own output and its rival's output. For each firm there will be a net receipts contour map like those shown in Figure 1.[2] Along each of the curves like those shown as "N$_A$ contours" duopolist A's net receipts are constant and similarly along "N$_B$ contours" B's net receipts are constant. Since the products are substitutes, the higher is B's output, given A's, the lower are A's net receipts except of course when A's output is zero. That is, the higher an N$_A$ contour from A's output axis, the lower A's net receipts. It will be noticed that the contours for each firm are drawn concave downward to that firm's output axis. Such concavity implies that along an N$_A$ contour, for example, as A's output falls B's output is "substituted" at a diminishing rate. Downward concavity of the contours in both maps is not necessary, but the contours in at least one of the two should have this characteristic at least at critical points.

Consider then the locus of those points of tangency, as at point *D* in the diagram, at which the net receipts of either duopolist is maximized for a constant net receipts of the other.[3] This locus is the no-gain

---

[2] The chart is constructed from an algebraic example in which the products are good but not perfect substitutes, demand and marginal cost functions are linear, marginal cost functions are positively inclined, and the two net receipts functions are symmetric to each other.

[3] Let x be A's output and y, B's. Write N$_A$ and N$_B$ for the two net receipts functions. Subscripts x or y will denote partial derivatives with respect to these variables. The slope to the x-axis of an N$_A$ contour then is

$$\left.\frac{dy}{dx}\right)_{N_A} = -\frac{N_{Ax}}{N_{Ay}}, \tag{1}$$

and the concavity of the curve with respect to the same axis is

$$\left.\frac{d^2y}{dx^2}\right)_{N_A} = -\frac{1}{N^3_{Ay}}\left(N^2_{Ay}N_{Axx} - 2N_{Ax}N_{Ay}N_{Axy} + N^2_{Ax}N_{Ayy}\right). \tag{2}$$

Since the products are substitutes, N$_{Ay}$ is negative except at x = o. Hence the slope of an N$_A$ contour has the sign of N$_{Ax}$.

The first order condition for maximizing N$_A$ for a given N$_B$ is

$$\frac{dN_A}{dy} = \frac{N_{Ay}N_{Bx} - N_{Ax}N_{By}}{N_{Bx}} = 0. \tag{3}$$

It follows by substitution from (1) that (3) requires that an N$_A$ contour be tangent to an N$_B$ contour at the maximum position. The second order condition for the maximum is

$$N_{Ax}\left.\frac{d^2x}{dy^2}\right)_{N_B} - \frac{N_{Ay}{}^3}{N_{Ax}{}^2}\left.\frac{d^2y}{dx^2}\right)_{N_A} < 0. \tag{4}$$

The first order and second order conditions for maximizing N$_B$ given N$_A$ order follow from (3) and (4) by interchanging A with B and x with y. Both second order conditions cannot be satisfied at a point of tangency where both the N$_A$ contour and N$_B$ contour are negatively inclined. For then (4) can be written

$$\left.\frac{d^2x}{dy^2}\right)_{N_A} + \left.\frac{d^2x}{dy^2}\right)_{N_B} > 0,$$

while its analogue for maximizing N$_B$ subject to N$_A$ is the same expression with the opposite sign. Hence except at x = 0 and y = 0 the no-gain curve is the locus of points of tangency of positively inclined net receipts contours. This point is important in later discussion.

curve, a curve thus formally analogous to Edgeworth's "contract" curve in his theory of barter exchange. It should be noticed that except at the axes the no-gain curve intersects the net receipts contours at points where the latter are positively inclined. Otherwise the curve would be a locus of minimizing rather than maximizing points.

That the curve found by the foregoing maximizing procedure has the no-gain property may be verified from Figure 1. Any departure from a point on the curve to any other point whether on the curve or not must reduce the net receipts of one of the firms for if it does not, then the point of departure could not have been a point at which either firm maximized its net receipts given the net receipts of the other.

The solutions implied by the classical Cournot and Bertrand theories are at points off the no-gain curve. Consider first the Cournot theory in which each firm is assumed to act as though the output of its rival were constant. For each output of duopolist B duopolist A then maximizes his net receipts. The locus of these maximizing points is A's Cournot reaction curve or Cournot curve. It is apparent from Figure 1 that this curve connects output points at which A's net receipts contours are tangent to lines drawn parallel to his output axis. Point F in the diagram is one such point. Therefore, the reaction curve intersects A's net receipts contours only where the latter have zero slope to his output axis. Thus neither of the two reaction curves intersects the no-gain curve except at one of the axes. It follows that the Cournot theory, unless it implies that one of the duopolists has zero output, must imply a solution off the no-gain curve.

The foregoing reasoning also implies that if one firm finds out that its rival is following a Cournot strategy and maximizes its net receipts given the rival's strategy, the maximum point will not be on the no-gain curve. For the maximum must occur at a point on one of the Cournot reaction curves which intersect the no-gain curve only at the axes. This modified Cournot theory might be called an "output leadership" theory, the leader being the maximizer and the follower the firm following the Cournot strategy.

Bertrand posited that each firm would act as though the price of its rival's product were constant and would maximize its net receipts subject to this condition. This assumption leads to Bertrand reaction curves which are the price analogues of the Cournot curves. Each Bertrand curve is the locus of points of tangency of the firm's net receipts contours with curves—prices contours—along each of which the price of the rival's product is constant. One such price contour is shown in Figure 2 where it is identified as a "P_B contour"; along it the price of B's product is constant. Since the products are substitutes, the price contours must be negatively inclined for an increase in the output of one product reduces the demand price of the second, a decrease which can be offset only by reducing the output of the second. Hence the Bertrand reaction curves cannot intersect the no-gain curve since they must intersect the net receipts contours at points like E in Figure 2 where the latter are negatively inclined. The solution implied by the Bertrand theory then must be off the no-gain curve.

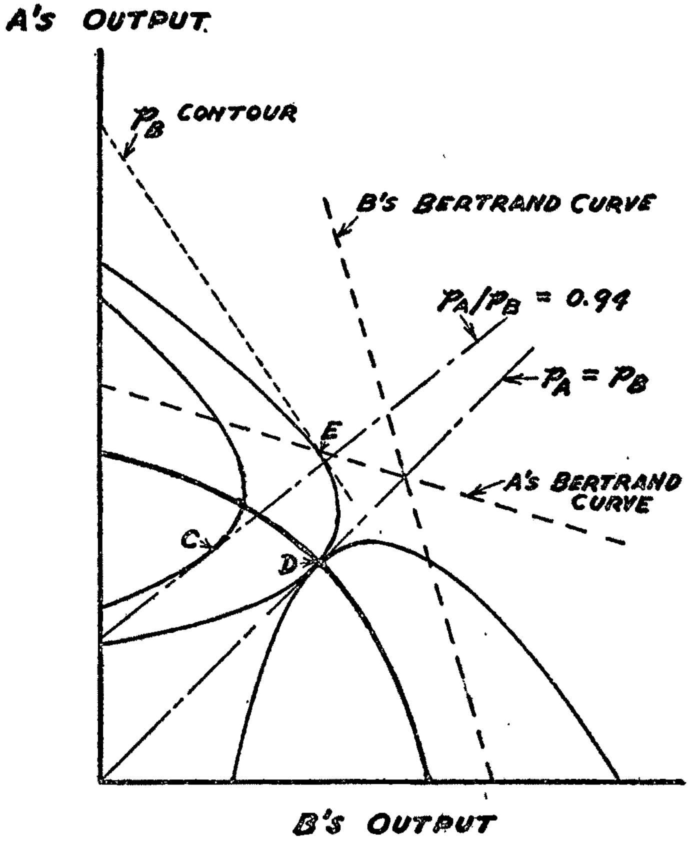

FIGURE 2

The same thing clearly is true if one firm finds out that its rival is following a Bertrand strategy and maximizes its net receipts given the rival's strategy. This modified Bertrand theory is a "price leadership" theory. Indeed it is the same as theory referred to in the literature by that name (or "dominant firm" theory or "partial monopoly") when the products are perfect substitutes.

Three other theories merit attention: the "market-sharing," "price-following," and "kinked demand curve" theories. In the market-sharing theory one of the firms is assumed to follow a policy of fixing its output as a constant proportion of the rival's output. The second, say duopolist A, maximizes its net receipts given the policy of the first. The maximum then must occur at a point where a radius vector—the reaction curve of the first—is tangent to one of A's net receipts contours, as at point *C* or point *D* in Figure 1. It is apparent from the diagram that the solution may be either on or off the no-gain curve. Indeed, if the solution occurs at the curve, as at *D*, it is a matter of indifference which of the two firms is "found out." If the two products are perfect substitutes and both firms have constant and equal marginal costs, the solution is the same as the monopoly solution whatever may be the constant output ratio.[4]

In the price-following theory, price plays the same role as output in the market-sharing theory. One duopolist, say B, has the policy of setting the price of his product at a constant ratio to that of his rival. The second, A, maximizes his net receipts given this policy of the first. The point at which the maximum occurs may be either off or on the curve. Point *D* in Figure 2 illustrates the case in which the solution is on the curve.[5] It should be noted that in this event the leader or maximizer cannot be distinguished from the price follower. On the other hand, at point *C*, off the no-gain curve, A has maximized his net receipts given B's policy of setting his price 6 per cent higher than A's.

The preceding discussion of the market-sharing and price-following theories is misleading if it makes the theories appear to provide determinate solutions. The solution each theory implies depends on the specification of the output ratio or price ratio involved. Since neither theory contains a logic for determining the ratio, the solution in each case is indeterminate with the indeterminacy limited to a curve which is the locus of points at which the "leader" maximizes his net receipts given the output ratio or price ratio of the follower.

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[4] Let C be the constant marginal cost of both firms. When the two products are perfect substitutes, the demand function is

$$p = p(x + y) \tag{5}$$

where p is the single demand price. Hence the first order condition for maximizing N_A subject to the restraint $x/y = a$, where *a* is constant, is:

$$\begin{aligned} 0 &= a(p - C) + (a + 1)x\frac{dp(x + y)}{d(x + y)} \\ &= \frac{x}{y}\left[p + (x + y)\frac{dp(x + y)}{d(x + y)} - C\right] \end{aligned} \tag{6}$$

The expression in square brackets when equated to zero is the first order condition for maximizing the sum of N_A and N_B.

[5] It should not be inferred from the chart that *equality* of prices is either necessary or sufficient for the solution to be at the no-gain curve. It is the symmetry of the two net receipts functions that implies the result shown on the chart.

The currently most popular theory of duopoly and oligopoly is the "kinked demand curve" theory. In this theory it is postulated that each firm acts as though decreases in the price of its product will be followed by the rival whereas increases will not be followed. This assumption thus is a combination of the Bertrand postulate—for price increases—and the postulate of the price-following theory—for price decreases. This combination of assumptions leads to a kink or corner in each firm's "imagined" demand curve and thus to a "hole" or discontinuity in its corresponding marginal receipts curve. At the equilibrium output for each firm the firm's marginal cost curve passes through the hole in its marginal receipts curve without intersecting the latter except perhaps at one extremity of the hole. Hence for not too large changes in the appropriate direction in cost or demand conditions the implied equilibrium prices remain fixed.

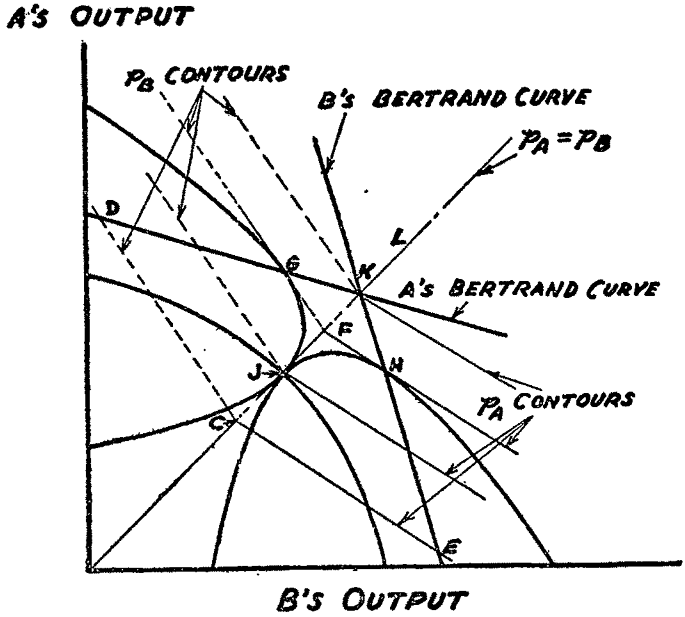

FIGURE 3

The theory is illustrated in Figure 3. The equilibrium prices depend upon initial prices in the following manner:

1. The equilibrium prices are the same as the initial prices when (a) each firm taking the rival's initial price as a constant would maximize its net receipts (at a point on its Bertrand curve) at a price—its "Bertrand" price—the same as or lower than its initial price; (b) each firm given the initial price *ratio* as a constant would maximize its net receipts

at a price—"follower" price—the same or higher than its initial price. Thus in Figure 3 if the initial prices were to correspond to the output points *J*, *K*, or *F*, there would be no incentive under the theory for either firm to change its price. At *F* the marginal cost curve for each firm passes through the middle of the hole in its marginal receipts curve, while at *J* and at *K* the marginal cost curves intersect corresponding marginal receipts curves at the extremities of the hole.

2. The equilibrium prices are lower than the initial prices when at least one of the firms finds that its Bertrand and follower prices both are lower than its initial price. Thus if the initial point were *C*, the equilibrium point would be at *J*, on the no-gain curve in the example of the diagram, where each firm maximizes its net receipts given equality of the two prices. At *J* the kinked demand curve theory leads to the same solution as the price-following theory.

3. The equilibrium prices are higher than the initial prices when one of the firms finds that both its Bertrand and follower prices are higher than its initial price. This would be true of both firms at point *L* in Figure 3; the equilibrium given *L* as the initial point is the Bertrand equilibrium at point *K*.

It is apparent from the foregoing discussion that the kinked demand curve theory may yield an equilibrium either on or off the no-gain curve. If the equilibrium is off the no-gain curve, it may be at any point in the band lying above the no-gain curve and below both Bertrand curves.

The preceding discussion of the equilibria implied by several duopoly theories leads to some general observations on duopoly theories which involve reaction curves, "conjectural variations" and like constructs. These theories can be classified as single- or double-reaction curve theories as they involve one or two such curves. In the single-reaction curve theories the policy of one firm embodied in its reaction curve is found out by the second firm which maximizes its net receipts given the policy of the first. If the maximum is to occur at a point on the no-gain curve, the reaction curve of the first firm must be tangent to a net receipts contour of the second firm at the no-gain curve in such a way that the second maximizes its net receipts at the point of tangency.

In the double-reaction curve theories there is a reaction curve for each firm. The solution implied by these theories generally is the point of intersection of the two reaction curves. Hence the intersection must occur at the no-gain curve if the solution is to be at the latter. In addition if the solution is to be stable against one firm's finding out the reaction curve or policy of the other, both reaction curves must satisfy the condition just stated for single-reaction curve theories. One of the implications of these conditions on the reaction curves is that in the neighborhood of the solution the curves must not be negatively inclined.

These conditions, however, do not enable one to select one point on the no-gain curve rather than another as *the* duopoly solution. It is tempting, therefore, to try to find some principle by which each firm may select an optimum or most rational policy or reaction curve among reaction curves satisfying the above conditions. After some yielding to temptation I have come to the conclusion that such an optimum does not exist or, to put it differently, the duopoly solution may be anywhere on the no-gain curve.

If this hypothesis is correct, it is relevant to ask when the no-gain *curve* is essentially a complete solution of the duopoly problem. In two cases—when the two products are perfect substitutes and both firms have equal and constant marginal costs and when the two products are perfect complements—every point on the no-gain curve is the monopoly solution and so however the market output or price is split between the two firms the total output and price are the same as they would be if the firms combined.[6]

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[6] For the proof in the first case seen footnote 4. When the products are perfect complements the demand function may be written

$$x = y = f(p_A + p_B) = f(p). \tag{7}$$

Let the marginal cost functions be $C_A(x)$ and $C_B(y)$. Then the no-gain curve is given implicitly by the first order condition for maximizing N_A given N_B:

$$f'(p)[p + f(p)/f'(p) - C_A(x) - C_B(y)] = 0. \tag{8}$$

This the first order condition for maximizing the sum of N_A and N_B.

OLIGOPOLY, MONOPOLISTIC COMPETITION, AND THE THEORY OF GAMES

By OSKAR MORGENSTERN
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My assigned task is to show briefly the relation between the problem of imperfect competition, oligopoly, and monopoly on the one hand and the theory of games of strategy[1] on the other. I need not here describe the current views on these problems. I wish, however, to pay my respects to those who have made such valiant efforts to solve them by means of theories that have attracted world-wide attention. This remark is called for, lest the following considerations be misunderstood, involving, as they do, the proposal for a radical departure from the present views. Yet this proposal may not be unwelcome since there seems to be a growing conviction that the current theories have run up against such serious obstacles that a fundamental reorientation is necessary. Because of lack of time I may be permitted to state the ideas of the theory of games positively rather than in detailed contrast with the existing theories.

The present piecemeal investigation of individual cases with a wide variety of assumptions and constellations shows the lack of unifying principles of sufficient power. Or, to put it differently, the currently used tools such as the marginal revenue, marginal cost concepts together with product differentiation and the attempt to determine a maximum of profits do not seem strong enough to unlock the exceedingly complex problems. In the background, moreover, is the undeniable and disturbing fact, already well known to Cournot, that when there are but few participants in a market, they reflect about each others' behavior and try to set their course accordingly. Here, indeed, is the crux of the matter and the difficulty should be squarely faced rather than relegated to an inferior role. It is in this domain where the need for a new approach becomes most convincing.

The theory of games of strategy cannot be presented here, because it is incompressible, in spite—or perhaps because—of the fact that it is still in its beginnings. New concepts and new tools of analysis had to be evolved and they would all require careful scrutiny. This it is impossible to do. Neither can I give applications to the American scene.

Another difficulty lies in the mathematical character of the theory. Moreover, the mathematics used are of a rather uncommon kind. They are not merely incidental but concern the very structure of the whole theory. Indeed, a state has been reached where some of the most important results of the theory could be found only by means of mathematics and cannot even any longer be translated adequately into words, precisely as it happens in physical theory. But the concepts which are used can perhaps become accessible for a qualitative description. I want to emphasize that the mathematical nature of the theory is something innate and not just a dressing up of fundamentally simple ideas. Of course, I do believe that a genuinely mathematical and axiomatic theory is superior to any nonmathematical treatment.

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[1] John von Neumann and Oskar Morgenstern, *Theory of Games and Economic Behavior* (Princeton, 1944, 2nd rev. ed., 1947).

I shall now state what the fundamental problem is: We wish to know how the individual, pursuing his maximum interest, should behave on all types of markets. This is a question of rational behavior, of judging quantitatively any situation in which he may be placed so that with his information he can assure himself of the maximum gain or utility. Economic theory must therefore indicate how the firm or the individual should behave under all conceivable conditions. This is a tall order. Current theory asserts that for free competition an ordinary maximum problem results: the firm achieves its maximum when its marginal costs equal marginal revenue and should produce until these two are equated. This is supposed to be exhaustive because the data are allegedly given immutably. Likewise the individual as a consumer can gain his maximum utility. Monopoly theory proceeds similarly, and all maxima are assumed to be obtained simultaneously.

The disconcerting difficulties of oligopoly and monopolistic competition arise because now specific assumptions about the reactions of others are unavoidable. Yet the belief that one is dealing with clear-cut maximum problems is not affected. But if one looks more closely the maximization even under free compeition has only been achieved by quietly assuming that the participants in the market do not form coalitions, combinations, etc., which would greatly reduce the effective number of actors. When the number of sellers or buyers or of both is small anyway, the maximum character of the problem becomes exceedingly doubtful even on a purely intuitive basis. Now it is one of the decisive steps in the theory of games to show that one is not confronted with maximum problems (unless dealing with an absolutely isolated Robinson Crusoe, and its formal equivalent) but with a fundamentally different situation.

Where is the difference? It lies in the fact that the theory of competition assumes that the individual or firms are in full control of all the variables that determine the outcome of any transaction undertaken. This is only achieved by the wholly inadmissible trick of holding everything else constant and of forbidding, tacitly no doubt, the previously mentioned agreements among the participants. In a bilateral monopoly, clearly, neither of the two opposing parties controls all the variables determining the outcome. Each has merely one partial set of variables while the result, i.e., the prices and the quantity traded, depends on both partial sets of variables together; i.e., on all variables. In this case no trick whatever will help disguise the fundamental fact that, while each of the participants wishes to maximize his own gain, the problem as a whole is not a maximum problem. It is a situation not taken care of anywhere in current economic theory. It is not even treated in classical mathematics. Furthermore, this kind of problem does not occur in mechanics from which economic theory has taken its images, concepts, and logical methods. I need hardly say more to indicate the extreme seriousness of this problem.

When we have a duopoly or oligopoly against oligopsony, or generally a few sellers against comparatively few or even against many buyers, the situation remains substantially the same: there is no maximum problem. The conjectures of people or firms about each other's behavior are as important as ever. Unless a general theory can be made embodying all these facts, the efforts are bound to fizzle out in a maze of incomplete discussions of partly understood cases. The theory of perfect competition as now generally taught at best remains at the outskirts of the vast field for which a theory must be established. The empirical unreality of its restraining assumptions is matched by the insufficiency of its methodical principles.

If the mechanical, physical model used at present in economics and the methods appropriate to it fail in providing a theory at once realistic and logically satisfactory, is there another model? It will have to fulfill the customary three requirements: it should be similar to the reality it is to model, it must be mathematically manageable, and it must lead to numerical-computational results. Games of strategy appear to fulfill the first requirement and, if a theory can be made, then economic reality can be modeled by suitable games. That is to say, it is more plausible to compare the sparring and jockeying between the large automobile companies to a game of poker with its bluffing, its bids and overbids, or, equivalently, to a military situation, rather than to some mechanical process such as a dance of molecules. Wage negotiations, e.g., between the coal miners and the operators, also have essential traits found nowhere but in games of strategy. Whether a theory can actually be made can only be decided by the success of the attempt.

There can be little doubt that it is intuitively satisfactory to relate games of strategy to economic behavior. Economists and businessmen speak sometimes in passing, but with good instinct, of economic warfare, of a "business strategy," or of the "rules of the game," say of the gold standard. In the same sense, the games we are thinking of are not the ordinary classical games of chance, but those of strategy where the outcome depends primarily on the behavior of the players although frequently chance factors also intervene as they do anywhere in the world.

I wish to emphasize the claim that there is not merely an analogy between the two fields of games of strategy and economics but a strict identity. Thus the theory is not only related to monopolistic situations but deals with all types of markets, with all kinds of economic and rational behavior.

Consider first a two-person game. Each of the two players wishes to win and if he does, it is at the expense of the other. In that case we have a zero-sum game; in economics presumably both parties gain from an exchange; hence the sum of their gains and losses is greater than zero and variable. Each player (or duopolist, if we neglect the buyers for the time being) wishes to gain the maximum. So he has to devise a strategy against the other. The same is true of the other player and there is a clear opposition of interests. Now it may be as disastrous to have one's own strategy found out as it would be profitable to discover the other's scheme. There are games where "being found out" does not matter; they are a minority and are called "strictly determined" and reliable and safe strategies exist. For all other games the chief thing is to protect oneself against the calamity of "being found out." Can it be shown that even in those cases strategies always exist that offer the necessary protection to each of the two players, thus making the game again strictly determined?

The answer is yes. It is based on the empirical observation that the participants playing, say matching pennies, will substitute random statistical behavior (within the rules of the game) for any direct plan of action, or so-called "pure" strategy, that could be discovered by the opponent. To demonstrate this—which makes every zero-sum two-person game strictly determined—a rigorous mathematical proof has been given. It involves a very deep-lying theorem of the so-called "minmax" type which was first proved in 1928 by von Neumann and which, incidentally, reappears in a certain system of simultaneous economic equations. Each particular two-person game must, of course, be solved computationally, but the fundamental theorem assures that the solution always exists and that the best strategy can always be found. This is more than can be said of many economic problems today involving market transactions. Even in the few cases where the existence of a solution has been determined, it is an open question whether it is meaningful, in view of the inappropriateness of the model currently used. Only for the case of the isolated Robinson Crusoe or, equivalently, the strictly organized communistic society can we be sure that a meaningful solution in the form of a maximum can always be found, although the computational difficulties may be immense or in fact insuperable.

The transition from the Robinson Crusoe type of economy to the simplest form of exchange transaction is characterized by the appearance of another "will," controlling part of all the variables which determine the outcome. When the number of participants increases further, entirely new phenomena again appear. When we have three or more players, structural properties of greatest importance in economics emerge. I shall try to give an idea of them by mentioning the principal concepts of the general theory in a qualitative way. The chief point is that the addition of every single new player produces a new situation. The analysis therefore builds up gradually from that of individual behavior, in the tradition of what is best in modern economic theory. Whether there will emerge a convenient asymptotic behavior of the theory when the number of participants becomes really large, remains to be seen. It is our belief, however, that no short cuts are possible.

If we consider three or more participants in a game, or equivalently in a market, we observe immediately the tendency to form coalitions of some of the players against the others. The urge to combine springs from the fact that in combinations it is easier to obtain one's maximum gain than by proceeding independently. These coalitions will necessarily oppose each other as the individual players in a two-person game. Coalitions will therefore have a value for the members, which is expressed by the so-called "characteristic function" upon which the entire theory is based. In order to be admitted to a coalition and to enjoy this advantage over being left alone, payments to others may be necessary. These "compensations," arising out of higgling and bargaining, must also be taken care of by the theory. It suffices to think of the formation of a cartel with production quotas, profit sharing, etc., and of the operation of labor unions, to get a proper empirical background. In all these cases monopolistic elements come to the fore. They are thus viewed as something fundamental in economic and social organization and do not appear as mere appendices of an allegedly basic free competition of the Lausanne type.

If it is at all accepted that fundamental tendencies to form coalitions are at work, then economic theory must account for them by giving these forces their proper role. Clearly, free competition will not continue to prevail when people can gain by combining. On the other hand, a monopoly may be upset by coalitions of its customers, etc. Any investigation of such markets that should neglect these tendencies will fail to describe innate instabilities and the theory must necessarily remain incomplete. The influence the recognition of this situation will have upon legal theory and practice is an interesting prospect.

The outcome of a game or of a market transaction is the making of payments; i.e., the "imputation" or "distribution" of the spoils. The question arises whether there is only one such imputation compatible with stability, where the imputation may also include the compensations paid to members of the coalition. This imputation would represent the solution of the game. Now it is of the utmost importance to realize that solutions with such single imputations are only found for those fundamentally uninteresting games where there is no advantage in combining into monopolistic coalitions. These games are properly called "inessential."

For the "essential" games the advantage in combining expresses the complementarity or non-additivity of value which has given so much trouble in economic theory. Individually the parts of a coalition are worth less than all put together. In the case of essential games there is never a solution made up of one single imputation or distribution. There are only solutions consisting of a set of alternative imputations. Assume that a given (essential) game has only one single solution: it would consist of a number of imputations. But only one of these imputations could materialize at a given time. Is one of these imputations or schemes of payments, e.g., the one that actually materializes, superior to any other, does one "dominate" the others? The answer is no, provided these other imputations, too, belong to the solution. And also that no other imputation will materialize. A solution is thus defined as a set of those imputations which are undominated by each other.

With these remarks we are in the heart of the theory because now we get insight into the structure of stability of a market or a social organization. There are clearly other possibilities for payments and profits than those expressed by the imputations belonging to the solution. Why should they then not be adopted? Surely they must be more advantageous to some members of the market, who must, therefore, strive to see them enforced? This is true. But if one of these imputations which are outside of the solution, and which thus do not belong to the "accepted standard of behavior," should be seriously considered by those who would profit under the scheme, that imputation would in turn be promptly upset or discredited by another one. Other combinations of players would be found who "are convinced or can be convinced" that another safe imputation exists which is to their advantage and that they could thus disturb the other group in their intended acceptance of the desired imputation. The upsetting imputation in turn would inevitably belong to the solution and would thus not be endangered by any other imputation, also part of the solution.

You may find these ideas somewhat unfamiliar and perhaps difficult and you may in particular object to the circular or implicit manner in which I have characterized a solution. You may also ask how one could be sure of the existence of a solution for all conceivable games. Yet you will probably agree that social organizations can be described by a criterion of "soundness" which is inevitably of this circular nature. But aside from the intuitive appeal these ideas may or may not have, they find rigorous mathematical formulation and were subjected to the most painstaking scrutiny of which modern logic is capable. The chief characteristic of a solution is the lack of transitivity of the imputations belonging to the solution. The stability of the imputation that actually materializes thus does not lie in its undisputed superiority over all others. This would only be the case if we had a clear maximum before us according to current economic theory. The stability rests instead with those other "virtual" imputations of the solution, which, though not materialized, could replace the chosen scheme of distribution without themselves being clearly better or superior. They would derive their stability from the same condition. There is thus no conflict between these imputations and that is why any one of them and all together are sound and form an accepted standard of behavior to which they impart an inner stability.

Here you will observe the much greater complexity of forms and concepts to which the theory of games leads. When present economic theory worries about indeterminateness, say of the price range in bilateral monopoly or duopoly, it is concerned but with trivial cases and has really not touched upon the great wealth of interrelationships to be expected in social phenomena. In fact, the theory of games even shows that single solutions of many imputations each must, for numerous games, give place to many solutions each again consisting of multiple imputations. Thus we often find several conflicting standards of behavior but each free from inner contradictions. This is a rigorous expression of the fact that on the same physical background of economic life quite different organizations and income distributions may be established. This indicates a wide divergence of the theory of games from physical theory, the current model of economics, where uniquely defined numbers or aggregates of numbers predominate and consequently much simpler notions of the stability of a price system and a scheme of distribution prevail.

I want to mention further that the theory of games almost automatically produces information about the role of monopolistic privileges and of discrimination. The theory shows that privileges cannot always be maintained by the privileged players even if anchored in the rules of the game. On the other hand, discrimination arises in spite of the general assumption of complete information of all participants. This is rather surprising and shows that discrimination is not, as seems to be widely thought, due to incomplete information. It is of a much deeper nature. An indication of this is also the demonstration that exploitation of the losing players by the winners is not always carried to the limit in the interest of stability of the standard of behavior. All this will be significant in the further study of monopoly and oligopoly.

What about the relation between the solutions for a bilateral monopoly as seen today and that obtained from the theory of games? The results agree fully when only one unit is transacted; but then both agree—fortunately!—with common sense. When the number of units is left for the market to decide, both approaches obtain the same volume of transactions, but the theory of games already shows that price may actually vary more widely than currently assumed, due to the fact that all sorts of premiums and rebates are also permitted. Considering a market of a monopolist selling to two buyers the theory of games again yields partly different results. The reason is that it admits of coalitions and collusions or understandings between the two buyers, or between one of the buyers and the seller, etc., so that the possible prices and the number of units transacted differ from the accepted views. There are indeed different prices for the two buyers, an interesting case for monopoly in general. It is unknown in detail what would happen in very much larger markets save that the complexity of relationships increases fast in conformity with what we observe in the world around us. One cannot in the least be sure that the margins between the possible prices would narrow as current theory desires, so that ultimately unique prices prevail when arbitrarily many buyers and sellers are present. On the other hand, entirely new vistas appear even for very small markets when account is taken of the important possibility that some participants may not have as fine utility scales and as clear a discernment of their advantages as others. But this can only be mentioned here. At any rate I have shown you that one has moved far away even now from marginal costs and marginal revenue as prime factors in the theory of price.[2]

In summarizing I should like to stress these points: (1) The theory of games of strategy is strictly empirical and thus far purely static. Its full development awaits a greatly expanded body of information about

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[2] In fact even the use and interpretation of such basic and elementary concepts as that of a demand curve are vitally affected. Cf. my (forthcoming) paper: "Demand Theory Reconsidered," *Quarterly Journal of Economics*, February, 1948.

DISCUSSION

WILLIAM JAFFÉ: Mr. Lewis' and Mr. Morgenstern's papers shed a great deal of light on the present state of our ignorance in economics. This, let me hasten to say, is no reflection on the quality of the papers. Rather it is to their credit that their authors have steered clear of the Charybdis of enthusiastic intoxication with facile mathematical models and of the Scylla of carping criticism of all systematic rational theory in favor of empirical fragments.

Mr. Lewis' contribution is one of a generalized frame of reference created ingeniously out of geometrical hints which, I believe, were first given by Hotelling[1] and von Stackelberg[2]. Mr. Lewis' paper is an essay in pure theory and must be judged as such. It would be futile to criticize it for not being on another subject. If we examine it at all, we must view it as an attempt to work out the necessary consequences of hypotheses the existential truth of which is left an open question. The justification for this endeavor apparently lies in the fact that most standard theory of duopoly proceeds from the same or similar hypotheses, without, however, revealing as comprehensive a pattern of significant deductions as Mr. Lewis has done. Thus we can say that Mr. Lewis' paper marks a definite advance in at least one aspect of pure theory.

Mr. Lewis has, however, given a peculiar twist to the standard hypotheses. This twist is open to objection, not from the point of view of form, but from that of content. However convenient its formal properties may be, I think that such convenience and elegance may be purchased at too high a price, if instead of taking the direction of successive approximations to reality, it takes the opposite direction. What I am referring to is the strange process by which the no-gain curve is reached. Duopolist A is pictured as adjusting his sales in the Cournot case or his price in the Bertrand case, not to the sales or price of his rival B, but to B's net receipts which A must regard as an independent variable. If, as A. J. Nichol once pointed out,[3] Cournot's solution suffers from a distortion of reality because it implies that buyers name prices, what shall we say of Mr. Lewis' supposition that each duopolist knows the current net receipts of his rival? If the two duopolists were so chummy, how could we exclude collusion with all its advantages? And if we have collusion, then all but one point of the no-gain curve disappear. The no-gain curve suffers then from extreme artificiality.

I suspect that Mr. Lewis would admit this, but would maintain that it serves to show that neither the Cournot solution nor Mr. Lewis' version of the Bertrand solution are stable, since any displacement from them in the direction of the no-gain curve would benefit both parties.

But the no-gain curve, like the bands above and below it in the case of kinked sales curves, does little more than to define the boundaries of a wide range within which any solution may be found. I am inclined to agree with K. W. Rothschild who has written in the current issue of the *Economic Journal* that "the statement that there is no determinate solution to the problem can only be a relative one." In other words, according to Rothschild, "it can only mean that the question cannot be suitably solved *within the framework of existing price theory*."[4] In my opinion, Mr. Rothschild would have been closer to the truth if he had said that the question cannot be suitably solved within the framework of partial equilibrium analysis, where Mr. Lewis' ingenious device still leaves it. The indeterminacy which he finds is very likely due to the insufficiency of relevant determinants within his narrow model. Mr. Lewis makes no effort to release any of the variables impounded long ago by Marshall in the *ceteris paribus* prison. These variables, once liberated and set to work, might well have reduced the range of indeterminacy. Nor has Triffin, despite the promising title of his book,[5] ventured to elaborate a more comprehensive general theory embracing the relevant economic variables determined by the simultaneous validity of an equal number of "structural" equations, as Koopmans calls them.[6]

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[1] H. Hotelling, "Stability in Competition," *Economic Journal*, XXXIX (1929), No. 153, 44-50.

[2] Heinrich von Stackelberg, *Marktform und Gleichgewicht* (Vienna and Berlin: Julius Springer, 1934), pp. 44-54. Also Paul Chamley, *L'Oligopole* (Paris: Presses Universitaires, 1944), pp. 45-74.

[3] "A Re-Appraisal of Cournot's Theory of Duopoly Price," *Journal of Political Economy*, XLII (1934), No. 1, 87-105.

Now Mr. Morgenstern hints at a new and startling alternative. Inasmuch as neither the book he has written in collaboration with von Neumann on *The Theory of Games and Economic Behavior*[7] nor the present paper offer more than vague suggestions as to the direction a more satisfactory theory of oligopoly might take, we have little to go on though the little is more than enough to arouse lively curiosity.

I do not know much about games. I confess, to my shame, that all I know about poker is what I have learned from reading pages 186 to 190 of von Neumann's and Morgenstern's book. Mr. Morgenstern's paper is very much like a hand in poker—visible to him, but not to us. He has bid high on it. Far be it from me to cast the slightest aspersion on his scientific integrity by imagining that he is "bluffing." Just the same, I do not propose to "pass." I want to "see"; that is, to make him show his hand and compare it with those of other players. I gather that it may take some time before he can lay his cards on the table, because actually no theory of duopoly or oligopoly has been worked out along the lines he suggests. We may grant that his speculations are far from idle and that they are eminently desirable, but for those of us to whom the mathematics of games is still unfamiliar, it is too early to tell.

Since Mr. Morgenstern at present appeals to our intuition, it may not be amiss to give voice to intuitive reactions, for whatever they may be worth. Intuitively, then, I perceive a relationship between Mr. Lewis' and Mr. Morgenstern's papers. We need only recall that Mr. Lewis has referred to his no-gain curve as something analogous to Edgeworth's contract curve. We may go a step further and note that the indeterminacy portrayed in both curves is a result of the indeterminacy of the path followed by the agents toward a solution. The theory of games may shed significant light on the direction of the path, but I wonder whether it can shed any light at all on the starting point of which the path is bound to be a function. To return to poker, we may have a theory of the players' reactions once the hands have been dealt, but wide ranges of indeterminacy remain, because the bids made depend in part at least on the hands held, and each player may have any one of 2,598,960 possible combinations. In the game of oligopoly, the number of possible combinations of relevant circumstances dealt at any moment by history is probably greater. How we can get determinate solutions by Mr. Morgenstern's device I cannot yet see.

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[4] K. W. Rothschild, "Price Theory and Oligopoly," *Economic Journal*, LVII (1947), No. 227, 304.

[5] Robert Triffin, *Monopolistic Competition and General Equilibrium Theory* (Cambridge: Harvard University Press, 1940).

[6] Tjalling C. Koopmans, "Measurement Without Theory," *Review of Economic Statistics*, XXIX (1947), No. 3, 166.

[7] Princeton: Princeton University Press, 1944.

Mr. Rothschild's suggestions[8] are still more startling. What it amounts to is an extension of the theory of games to cover the fact that poker players sometimes pull guns on each other or bribe the sheriff to break up the game at a convenient moment. Players sometimes cheat or they may without scruple, as in war, change the structure of the game itself. Since oligopolists behave like that at critical moments, Rothschild would have us turn to Clausewitz's *Principles of War* for guidance. But this is a counsel of despair. Once we leave the realm within which *natura non facit saltum,* we plunge into intellectual chaos, not science. Perhaps the nature of duopolistic behavior is not amenable to systematic analysis, but I doubt that. At best the theory of games or of war can only be part of such analysis.[9]

MARTIN BRONFENBRENNER: We economists are supposedly a smug and self-satisfied lot, ascribing most of the world's social ills to its failure to pay us more attention and respect. This charge may be true enough in some fields—where, moreover, our self-satisfaction may even be justified. The theory of imperfect competition, however, is not one of these Elysian fields, and I should like to refer you to the two papers we have just heard for evidence that our estimate of our own past accomplishments in this branch of economics is correspondingly modest.

There are two basic weaknesses in the theory of imperfect competition as presented in the standard English-language works of Mrs. Robinson, Chamberlin, and Nicholls. The first weakness is the one which both speakers have stressed here—a weakness apparent chiefly to the disappointed logician who lurks beneath the lion's skin of many an economist of theoretical bent. Instead of reconstructing price theory on a broader basis, imperfect competition has tended to disintegrate or decompose it into a myriad of disconnected compartments. Each compartment, each special case, is excessively limited in scope. The fragments are subject to no useful unifying principle. At the same time, at least two major gaps have been left open in the line of special cases. The first of these gaps pertains to problems of economic growth and development, of research and innovation. Attacks through this gap have come thick

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[8] *Op. cit.*

[9] C. Kaysen, "A Revolution in Economic Theory," *Review of Economic Studies,* XIV (I) (1946-47), No. 35, 15.

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and fast from both right-wing apologists for big business and left-wing prescribers of stronger medicine than trust-busting. The most effective such attack is probably that of Professor Schumpeter in Part II of *Capitalism, Socialism, and Democracy*. The second gap has been a failure to question, footnotes and parentheses aside, the identification of rationality with profit maximization which is valid under free competition. To abstract from the "quiet life" advantages of a monopoloid position and the prestige value of large size, and to ignore the willing sacrifice of (stockholders') profits by a (non-stockholding) management for the maintenance of these advantages and this prestige, has led at times to exaggeration of the probable quantitative importance of output restrictions, excess capacities, and consumer exploitation at the hands of monopolies and oligopolies, though not, I am convinced, at the hands of little men "on the make," in trade association assembled. It is at any rate this first weakness, this logical weakness of fragmentation and disintegration, that Professor Lewis and Professor Morgenstern attempt to remedy in their widely separate ways.

But before passing on to their suggested remedies, I should like to call or recall to your attention a second major weakness of imperfect competition theory. This weakness is apparent chiefly to the framer or administrator or adjudicator of public policy in public control of large-scale enterprise or business practices. The weakness is one of almost complete uselessness and inapplicability.[1] We have another "empty boxes" problem on our hands, when it comes to applying most of our elaborate theory of pure monopoly or oligopoly, or its counterparts, on the buying side of the market. We have an "overloaded boxes" problem to contend with, when it comes to applying most of the theory centering about Chamberlinian monopolistic competition or the kinked demand curve. On the one hand, there are no "pure" monopolies or duopolies; on the other, every industry has elements of monopolistic competition and discontinuity of some basic function on at least one side of its market. How can an administrator recognize or regulate either the non-existent or the universal? He needs a definition of "workable competition," either in J. M. Clark's sense or in some other, complete with numerical boundaries, test of significance, and confidence intervals. Or perhaps he needs rather a scientific determination of a critical value for the degree of monopoly, either in A. P. Lerner's sense or in some other sense which includes a usable allowance for whatever secondary advantages may arise from vertical or horizontal extension over additional markets, preferential access to raw materials or financing, and so on over a wide range of factors operating on either the demand or the supply side but unreflected with any clarity in either price elasticities of demand or supply or percentage shares in any "market" as ordinarily defined.

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[1] Not having the advantage of personal experience in the Department of Justice, the Federal Trade Commission, or equivalent bodies operating either on a local level or in individual industries, I must rely for support of this drastic statement on the measured conclusions of men working in the field. These conclusions are, first, that the condition exists, and second, that it is not simply a matter of "the lawyers," "the judges," or "the bureaucrats" failing to understand the current theory. In particular, I rely heavily on the experience and conclusions of Professor Corwin D. Edwards, as summarized in a lecture at the University of Wisconsin on December 5, 1947. Professor Edwards' views will appear, I believe, in fuller form in a book which is to be published during the coming year.

The weakness under diagnosis and treatment here, however, is the first. Its basic symptoms are disorganization and lack of generality, a combination of St. Vitus' dance at each extremity with paralysis of the organism as a whole. I hope Professor Morgenstern is right in surmising that it may not be found completely unrelated to the second weakness, which is the more readily apparent one to the general public. Four main lines of remedy have been suggested. Professor Lewis' paper is along one of these, Professor Morgenstern's along another.

1. There is an institutional remedy which amounts, in some cases, to euthanasia. We are to postpone any general theorizing about imperfect competition indefinitely—or at least until an adequate number of case studies and poundage of facts have been filed away for reference. Meanwhile on the policy side, the institutionalists on the left wish to proceed either with wholesale nationalization of "big business," or the blackmailing glare of "pitiless publicity" designed to make it behave while on probation. Their confreres on the right are all for "self-government in business." This institutional pattern of thought underlay, I think, a great deal of the work of the TNEC, the studies of price policy by Walton Hamilton and his associates, and the Twentieth Century Fund study of cartels. Certain of John R. Commons' followers[2] interpret his doctrine of "reasonable value" in *Institutional Economics* as an attempt at a systematic theory of public control of imperfect competition, particularly in bilateral oligopoly and collective bargaining. Another institutional systematization, again in the field of oligopoly, is to be found in Mr. Rothschild's essay in the *Economic Journal* last fall.[3]

2. At the other extreme, there is the reaction of extending the coverage of the conventional analysis. This is expressed here by Professor Lewis' paper on duopoly. It attempts to classify as wide as possible a range of cases on the basis of a few fundamental principles, and derive appropriate conclusions for each subclass on the basis of orthodox theory. Order is created out of chaos by taxonomic devices. This approach has been more characteristic of European than of Anglo-American writers in imperfect competition. On the other hand, orthodox economists also extend the coverage of existing theory to cover additional cases which had been neglected or considered insoluble with less powerful tools. Within imperfect competition, the recent extensions have ranged from problems of exhaustible resources (Hotelling) to the development of the consequences of the multiplant status of the typical monopolistic firm, which contrast markedly with those ordinarily reached under the unrealistic assumption of the characteristic monopoly pattern as a mammoth single plant.[4]

3. While retaining with only minor modifications most of the basic tech-

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[2] Cf. Kenneth Parsons, "John R. Commons' Point of View," *Journal of Land and Public Utility Economics,* August, 1942, pp. 245-266.

[3] K. W. Rothschild, "Price Theory and Oligopoly," *op. cit.,* September, 1947, especially Section IV, pp. 307-319.

[4] Cf. Don Patinkin, "Multiple-Plant Firms, Cartels, and Imperfect Competition," *Quarterly Journal of Economics,* February, 1947, pp. 173-205.

nique of conventional price analysis, it is possible to work out alternative theories of entrepreneurial behavior—which Hart has called "quasi-rational" —by substituting "full-cost pricing" or "markup pricing" for profit maximization as the leitmotif of price policy. Gathering dust in my own files is the rough draft of a paper comparing the outcome of this sort of pricing with the outcome of price maximization under monopolistic conditions; I have seen the manuscript of another, on markup pricing, which Professor Oxenfeldt is preparing for publication. The kinked demand curve analysis of oligopoly theory may also be a "quasi-rational" pattern of behavior, depending on the reasoning which prompts the oligopolist to act as though it existed. Still another "quasi-rational" approach which looks promising a priori would apply in price theory the sort of indifference curve analysis which Professor Fellner has found useful in analyzing collective bargining.[5] (Fellner desists from the fruitless attempt to discover an elusive something which unions are supposed to maximize in the bargaining process, and substitutes therefor an indifference map in wage rates and employment.) The "quasi-rational" approach goes a long way toward filling in gaps in the chain of special cases which comprise the contemporary theory of imperfect competition, but it offers no coherent unifying principle. I have yet to see any single specific development which seems much more realistic over a very broad range than the cases covered in the more sophisticated textbooks.

4. We have, finally, the attempt to construct a completely new framework of economics centered, if you will, around "imperfections" of competition, and based on a less familiar mathematical model than the conventional "theoretical mechanics of the price system," but certainly as abstract, certainly as deductive, certainly as formal, as the construction which it proposes to supplement or replace. Professor Morgenstern has become, surprisingly, a leading practitioner in this domain. I say surprisingly, because a man who devotes months or years to the negative task of probing the weaknesses and exploding the pretensions of a body of established doctrine as Professor Morgenstern did in his *Limits of Economics*, without simultaneously providing a substitute, is expected to settle down for the rest of his days as a professional iconoclast, and to ignore all subsequent developments in the field he has damned to his own satisfaction for all time. This happened in varying degrees, I think, to Marx, to Commons, to Veblen; I think it is happening currently to many whom diplomacy forbids me to name. It is obviously not happening to Professor Morgenstern. The paper which he has read today is essentially an explanation of past work in a proposed reconstruction of economics along the lines of the mathematical theory of games of strategy, and a preface to future work. In itself, Professor Morgenstern will pardon my remarking, it is little more than an expository piece.

These background comments have expanded to the point where there is little time left to discuss the specific contributions of the papers themselves, which may be just as well, since I find myself with very few points to make.

I think I can appreciate better than most the technical *tour de force* which

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[5] William Fellner, "Prices and Wages under Bilateral Monopoly," *Quarterly Journal of Economics,* August, 1947, pp. 503-532.

Professor Lewis' paper represents because I myself tried something along the same lines several years ago and discovered almost before I started that I was beyond my technical depth. At the same time, there are two points which I would like to raise, which, if they are valid, seem to me to reduce rather sharply the generality of the Lewis solution to the duopoly (and inferentially the oligopoly) problems under Lewis' assumptions of strict profit maximization without collusion, tacit or otherwise.

Professor Lewis uses the apparatus of indifference and contract curves essentially as developed by Edgeworth and Marshall. Edgeworth and Marshall applied it to instances of face-to-face barter, where the two parties were on opposite sides of the market, as in the direct barter of apples for nuts or of "representative bales" of English for German goods. In these examples, each successive stopping place en route to the contract curve cannot involve any loss over the last such stopping place for either participant in the exchange, since mutual consent is necessary for acceptance of the new position. An apparatus of this kind is suitable to a bilateral monopoly problem in imperfect competition, where the monopolists are on opposite sides of the market. Professor Lewis has employed it in duopoly, where the two participants are on the same side of the market and where competition does not involve direct face-to-face bargaining.

I wonder whether the Edgeworth-Marshall apparatus really applies to this second sort of problem. In particular, I wonder why each individual is limited in his adjustments to moves which will not reduce the profit of the other party below its previous position or even below zero, for the requirement of mutual consent is not involved. In jargon, I do not follow the dynamic adjustment process by which the no-gain curve is reached. I do not see how we can be sure that it will be reached in fact, and that a process of divergent and explosive wandering about the indifference surface can be avoided.

The existence of a defined and stable quantity indifference surface in a situation which does not involve face-to-face negotiation implies a great deal of reliable information about the quantity of rival products and the prospective prices at which they are to be offered. In a really realistic duopoly model, surprise should perhaps play an important part. A duopolist's reaction to his rival's sales of x units of commodity might involve such changes in the specifications of his partially-differentiated product or in its price as to outmode and obsolesce the indifference map which formed the basis of the original movement. Professor Lewis' analysis is limited to cases of indifference varieties which either remain stable in the face of disappointments favorable and unfavorable or which never encounter such disappointments. These situations cannot be proved impossible in the absence of collusion, but I suspect that their likelihood is somewhat less than it seems to appear to Professor Lewis.

Turning to Professor Morgenstern's contribution, I have a feeling that most of my few suggestions are quite probably unnecessary. The first of them, however, is that he and his associates should set about forthwith to disprove as far as they can the obvious charges of formalism and pyrotechnics which may be leveled against their work. They should formulate some substantial body of their results in a form susceptible to testing against the received doctrine, and then carry out the tests which are indicated.

It may be that a substantial body of advanced mathematics is required for the comprehension of the basic logic of the theory of games in its application to economic behavior. I understand why the translation of the mathematics of strategy into literary terms may easily be unfeasible, although I should like to question on semantic grounds the implication that it is rigorously impossible. In any case, Professor Morgenstern would do well to reformulate as large as possible a segment of his contribution in simple arithmetical or diagrammatic examples. Losses in generality and in rigor are inevitable, but they should be accepted with good grace for the sake of intelligibility, and for the sake of inducing a larger minority of readers into the cold shower of pure mathematics required for fuller comprehension. Insofar as economists in general are familiar with more than the cover of Morgenstern and von Neumann's magnum opus, I venture to suggest, the principal reason is Professor Hurwicz's review article[6] which undertook just such a reformulation of a few leading principles.

"There is no vested interest," Professor Frank Knight used to tell his students, "like the vested interest in an idea." Of all the vested interests in ideas, there are few like that of the economist in what he had to learn for his doctoral examinations. The mildest of us can resist like Stalingrad a new body of theoretical doctrine after inoculation by the Ph.D. degree against any relearning whatever, or indeed against any accretion to the storehouse of lecture notes beyond three facts and one Supreme Court decision per academic semester. Having admitted all of this, I should like to suggest that the area of economic behavior over which the perfectly general theory of games of strategy will reduce to the traditional economics of profit maximization will be rather larger than Professor Morgenstern supposes.[7] In many cases, the individual, while forced to recognize the dependence of his optimum position on the reactions of others, can neglect these reactions because either they will not be affected by his actions or he can predict confidently what they will be. In these cases ordinary analysis applies and "strategy" is of minor importance. In the first class fall cases involving almost pure competition and cases involving a high degree of uncertainty. In the second class fall cases of pure monopoly, much of Chamberlin's monopolistic competition, and a great many cases of oligopoly, where price stability, price leadership, or price agreement is overwhelmingly likely. Also in this category fall cases in which "the rules of the game" operate to rule out "strategy" altogether or relegate it to matters of relative unimportance.

H. L. McCracken: I wish to direct my attention to the paper by Mr. Morgenstern in which he asks us to apply "The Theory of Games" to oligopoly and monopolistic competition.

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[6] Leonid Hurwicz, "The Theory of Economic Behavior," *American Economic Review*, December, 1945, pp. 909-925.

[7] Much of the remainder of this paragraph represents a quotation or paraphrase of the comments of my colleague, Professor James S. Earley.

After a brief introduction, Mr. Morgenstern says:

> I shall now ask what the fundamental problem is. We wish to know how the individual, pursuing his maximum interest, should behave on all types of markets. This is a question of rational behavior, of judging quantitatively any situation in which he may be placed, so that with his information he can assure himself of the maximum gain or utility. Economic theory must therefore indicate how the firm or the individual will behave under all conceivable circumstances.

Following this statement, Mr. Morgenstern rightly points to the wide use of the concept that maximum profits are made where marginal cost and marginal revenue are equal. He grants that this might be true for a static situation, but he contends that if we take the realistic attitude of dynamic and everchanging conditions and degrees of competition, or lack of them, then, in the arena of business, with changes occurring daily which affect business and profit, we will not find businessmen calling in highly paid certified public accountants to find the exact point of marginal cost and marginal revenue. Instead, they will conduct their business in the daily atmosphere of "games."

Personally, I find myself rather captivated by this theory-of-games approach to economic or business behavior. Furthermore, it seems to have a special degree of relevance for conditions of duopoly and monopolistic competition. For, in pure competition, the number of competitors is so large that no one seller has significance with respect to the whole. Therefore, since he cannot affect the price, no matter what he does, there is not much use to stop to figure out the moves of competitors. Also, in pure monopoly, since there is no opponent to watch, there is no game, at least beyond the realm of solitaire. But in monopolistic competition, where the number of units is so small that the individual firm does have significance, where policies within his own firm will affect supply and price sufficiently to register in the market, then a constant watch upon competitors is all important.

Consider for a moment the automobile field which answers beautifully the requirements of monopolistic competition or oligopoly. As soon as one of the larger firms comes out with a significant change of body model—Studebaker, 1947—immediately every automobile manufacturer must consider, or reconsider, his own policies. If another company comes to terms with organized labor with an increase of eighteen cents an hour, what must your firm do to keep labor content and achieve maximum production? If one company follows a wage increase with a price increase, will you follow suit or seek a larger share of the market by not raising price? Of course, the answer may depend somewhat on the condition of the market. Is the chief problem that of finding buyers (1933) or of finding automobiles (1947)?

Certainly, in the modern business age, with its depression problems of the early thirties or the war problems or the postwar problems of bottlenecks and inflation, one must run his business much like the skilled basketball player. He must develop a "pivot foot," and be ready to turn and go in the opposite direction on a split second's notice.

Too long has economic theory concerned itself primarily with demand and cost analysis. For Ricardo, insofar as long-run normal price was concerned, that was about all there was to economic theory. Of course, Alfred Marshall broke price and cost down to special cases, as, for example, conditions of increasing costs, decreasing costs, constant costs, the unique condition of joint costs, and the times and occasions where prime costs were more significant than total costs.

But the cost approach to price and equilibrium has one fundamental weakness. Except for the light consideration given here and there to "opportunity costs," the approach to price is from the past. But in all dynamic situations —especially at the present time—men are concerned primarily with business forecasting and the length and degree of inflation. Are we in for a boom and a bust? The successful businessman of today and of the future is not the one who knows the most about the cost-price relation but the one who does the best job of forecasting the future as to the inflation and deflation spiral, and who can forecast best the tactics of competitors and the caprice or style patterns of consumers.

Twenty-five years ago, John R. Commons gave to the economic world his *Volitional Theory of Value.* As a student of his at that time, I placed a sentence in my notes which reads as follows: "Value is a mental appraisal in the present of expected future uses or incomes." All value comes out of future expectations, not out of past costs. The same idea is found in Keynes's *General Theory,* Chapter V, on "Expectation." Regardless of how professors of economic theory write their books or draw their demand and cost curves, the chief concern of the successful businessman is that of watching daily the moves of his competitors and the possible or prospective changes in mood or habit of prospective customers. Every new move made by competitor or customers makes imperative some new move or considered adjustment in his own business to meet the new contingency. Yes, I like the theory-of-games approach to economic behavior.

However, I would like to issue one word of caution or warning. In the theory of games, we always do have competitors—except in those rare cases of collusion where a prize fighter "hits the canvas" at the previously agreed upon time, or a "Black Sox Scandal." But, for the most part, games are fought to the bitter end between opponents bent upon beating the opponent or winning the game. Of course, we do have three-handed games, where, when one gets ahead, as in Monopoly, the two who are behind may "gang up," as it were, on the one who is out ahead. But, in the main, in games, competitors are out to win for themselves without collusion.

Yet, in business, competitors are eternally and forever trying to reduce the degree of competition. Witness the opposition to antitrust legislation and the periodic attempts to get such laws repealed or modified. Even the New Deal NRA was accepted by business because it invited industrial groups to get together and create codes, dealing with quotas and prices, and it was even recommended that quotas be kept low and the price high. Furthermore, those industries which did collaborate were not prosecuted for violating the Sherman antitrust law, but were allowed to fly the Blue Eagle as a badge of honor.

So, my quarrel—to the extent that there is a quarrel—with Mr. Morgenstern is that instead of duopolists and oligopolists eagerly entering the business game to compete to the last ditch like skilled chess players, each trying to checkmate the other or capture his king, castles, and men, they are constantly trying to change the business situation from that of competitive games to that of mutual co-operation. So, before we can place too much stress upon the theory of games as an approach to duopoly and oligopoly, we must be ever mindful of the fact that the competitors do not like to carry on as competitors, but are ever scheming to get rid of the game of competition.

As I understand the objective of Mr. Lewis, it is this. He assumes two duopolists, each producing a differentiated product, yet the differentiation is so slight that both products are highly competitive, i.e., the buyers of both products are the same, and the degree of preference is so mild as to cause a relatively large shift from one product to the other if there is any variation in price. He also assumes that the duopolists are in business for the same reason. They are in business for profit, and each is seeking maximum net profit.

With these assumptions, the goal and purpose of economic theory is to discover if, in the long run, it is possible to discover an equilibrium output and price which will yield, for each, maximum net profit. In grappling with this equilibrium price and production problem for two competing duopolists, he makes the statement with which we would all doubtless agree; namely, that "there is not now a duopoly theory to which economists generally subscribe."

Mr. Lewis then gives due attention to the work of Cournot, Bertrand, the kinked demand curve theory of Stigler, and the familiar market-sharing and price-following theories. It is not my purpose to re-examine or even evaluate these separate theories, but I shall pass immediately to his conclusions in the last two paragraphs. Here he says: "These conditions, however, do not enable one to select one point on the no-gain curve rather than another as *the* duopoly solution." He then goes on to say that "it is tempting to try to find some principle by which each firm may select an optimum or most rational policy. . . . After some yielding to temptation I have come to the conclusion that such an optimum does not exist or, to put it differently, the duopoly solution may be anywhere on the no-gain curve."

Then, in the last paragraph he says:

> If this hypothesis is correct, it is relevant to ask when the no-gain *curve* is essentially a complete solution to the duopoly problem. In two cases—when two products are perfect substitutes and both firms have equal and constant marginal costs and when the two products are perfect complements—every point on the no-gain curve is the monopoly solution and so however the market output or price is split between the two firms the total output and price are the same as they would be if the firms combined.

Now, since Mr. Lewis has been "tempted" to say something, I, too, am tempted to say something. First, if the theory can explain equilibrium price and amount only when the two products are "perfect substitutes" then he has left the duopoly field entirely and has jumped to monopoly. For one of the most basic features of duopoly or monopolistic competition is product differentiation. Furthermore, this product differentiation, whether real or fictitious, is so basically established in the minds of prospective buyers that for many there is a difference. For fundamental economic theory there is positively no difference whatsoever between homogeneous, identical products and products that are "perfect substitutes." The same could be said of two commodities that are "perfect complements" and output and price would be the same as if the firms combined. If these are the only two cases of duopoly where equilibrium price and output can be adequately explained, then it is difficult to see what has been added to duopoly theory by the paper read. His final conclusion seems to be that only where duopoly is so near like monopoly that you cannot tell the difference, either in the products or in price and production policy, can we explain equilibrium price and amount. But monopoly equilibrium price and amount have been fairly well explained for some time. Is this another case where "the mountain has labored and brought forth a mouse"?

David McCord Wright: Dr. Lewis, largely by implication, and Dr. Morgenstern, directly, discuss the relationship of competition and monopoly to the problem of knowledge—in the sense of outguessing one's competitors. I should like to discuss the relation of knowledge to monopoly in another sense—the problem of anticipating consumption and production patterns. My task will be threefold: (1) to recount some very elementary terminological considerations; (2) to indicate a possible bridge between "pure" and cyclical theory; (3) to contribute something toward exploding our modern popular superstition that the business cycle has some necessary connection with monopoly or price rigidity.

Chamberlin's distinction between "pure" and "perfect" competition is indispensable to clear thinking on these points. Pure competition to him means merely a perfectly elastic individual demand curve. This reflects two requirements: (1) the consumer is perfectly indifferent between sellers; (2) the seller thinks (he may be wrong) that by himself he has no influence on price.

Perfection of competition, on the other hand, means perfect knowledge, adaptability, absence of friction. Thus the mere durability of equipment or the fact that we are restricted to a given space-time system are imperfections. Modern criticism often tacitly assumes a standard which must combine both purity and perfection. To stress this fact, I suggest we use a third term: "absolute" competition. Such a concept implies its own difficulties, since without some friction things would be perfectly unstable. But conceptually at least we may think of absolute competition as retaining just the minimum degree of friction needed to prevent endless vibration.

We need not develop the fearful logical difficulties of such a definition indicated by Dr. Morgenstern. The practical point is that while pure competition is sometimes nearly approximated, absolute competition is absolutely unattainable. Much modern popular literature implies that if only we had perfect competition everything would work perfectly. "Perfection" in such contexts usually means small size plus numbers. So interpreted, the statement is entirely wrong. Even if every industry were split into 100,000 competing units, the resulting market would be neither perfect nor perfectly stable. At the best the most severe standard applicable to the real world is dynamic, almost pure, but imperfect competition. Static absolute competition is inconceivable.

These terminological subtleties are not mere intellectual playthings. They are the source of many serious policy confusions. Take profits. We say that in a pure and perfect market pure profit would be "competed away." And it is therefore easy to blame actual profit or "supernormal" profit on "monopoly." But in fact, in a dynamic economy, a purely competitive industry could still show a very high rate of profit. Furthermore, such high profits might be essential to the process of growth. Without his temporary bonus, as Schumpeter asks, will the entrepreneur continue to be active? The problem, like most problems, may be solved by definition, but in common parlance one could almost say that if the system worked perfectly it would not work at all.

Still more important is the problem of the business cycle. It is a generally accepted principle that human wants are boundless, and as a consequence we can argue that as output increases, new wants and new methods will "spontaneously" appear. And if the concept of "perfect" knowledge inherent in perfect competition be taken so broadly as to imply an ability of businessmen to anticipate and adjust perfectly to such demand changes as they occur, then Professor Knight's idea of boundless investment uses would be substantially correct. There could be no investment glut because there would always be sufficient change. Also there would be no business cycle. But though the resulting state of affairs would be a condition of uninterrupted *development,* it could not be a static general equilibrium. This indeed would be impossible.

If we fail to experience such a state of steady development, some will blame it on "monopoly." But is this correct? "Perfect" knowledge in the real world can never be so perfect as perfectly to bridge the gap between production plans and consumer's vague desires. The *market* pattern of wants and of production, therefore, while changing with expansion, alters discontinuously. Thus in the real world temporary investment gluts do become possible.

Assuming, therefore, a world of pure but imperfect competition, cyclical possibilities in a pure market are easily shown. There is, for example, the backlog problem which I have developed in my *Economics of Disturbance.* Given slack in the productive system and intensely felt demand for certain durable goods, the system in the very act of satisfying consumers as *quickly* as they wish will be likely to distort itself. We seem to have grossly underestimated the size of our postwar backlogs. Nevertheless if we rush ahead to fill the housing backlog, we cannot complain if there is someday a housing slump. Personally I hope we do rush ahead. Only let us be prepared to meet the consequences when we come to them.

The implication of page 24 of the *Second Report of the Council of Economic Advisers* that any housing slump actually occurring will necessarily be be the result of charging too much, is quite indefensible and cannot even be reconciled with the statements made on page 23 of the same report regarding the automobile industry. If the automobile industry can saturate its backlog, why not the housing industry. If one assumes some stability both in taste patterns and wealth distribution—even if highly equalitarian—the problem cannot be avoided.

Strenuous efforts are now being made to convince the public that voluntary price reductions toward the height of a boom would largely avoid recession. Admittedly such reductions—perfectly timed—would help. But as a means even of keeping depression within bounds, I consider them almost entirely ineffectual. Suppose a system is about to reach a point of backlog saturation. Price reduction to avoid depression would have to be made in precisely the industries whose demand curves have sufficient elasticity to make it worth while. Also there must be enough such industries. Yet in such a situation many of the necessary industries would be entirely new. They would have to be created by strenuous entrepreneurial effort. The system would have to be sufficiently flexible to make a drastic and virtually instantaneous shift in the direction of its productive flow. The inevitable discontinuity of durable goods production in a free society cannot be avoided by mere *ex ante* price reduction. Other means of stabilization—as public works—must be kept in reserve.

I have heard it said that people usually become neurotic when they want irreconcilable things. Our society is neurotic in demanding a degree of stability impossible to combine perfectly with the promptness in satisfying demand for which we also clamor. We cannot escape this dilemma by seeking out a whipping boy called monopoly or rigid prices, and it is to be regretted that the Council of Economic Advisers is not putting more of its effort into facing the real issue. It is in the hope of focusing attention on these issues that I offer my rather elementary terminological critique. One of the things which unduly weakens our antimonopoly efforts is that we expect too much from them. The aim of antitrust action is to preserve the democracy and the technological creativeness of our society. It cannot give us either the hypothetical ideal maxima of welfare economics or create an absolutely self-adjusting world. But it is nevertheless indispensable, in my opinion, to our democracy.

THE ROLE OF MONOPOLY IN THE COLONIAL TRADE AND EXPANSION OF EUROPE

THE ROLE OF MONOPOLY[1] IN THE OVERSEAS EXPANSION AND COLONIAL TRADE OF EUROPE BEFORE 1800[2]

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I. *Introduction*

The great European empires of classical antiquity included a fringe in Asia and the Mediterranean littoral of Africa, and the crusading nations and trading states of the late Middle Ages acquired tenuous footholds in Asia Minor and on small islands in the eastern Atlantic. But Europe controlled little territory beyond its own boundaries either in ancient or in medieval times. It remained for the enlightened captains and bold sailors of Prince Henry the Navigator to inaugurate, early in the fifteenth century, the great age of discovery, from which both imperialism and the modern world have emerged. From that time until the Napoleonic Wars suspended expansion by absorbing European energies at home, the leading powers of Europe effectively occupied more than a third of the earth's surface and established claims to more than half of it.[3]

Near the end of this period, Adam Smith concluded, after two decades of reflection and a full year in the British Museum reading on colonial questions, that "the utility which has resulted from . . . the establishment of the European colonies in America and the West Indies . . . is not clear and evident. It was not understood at their first establishment, and was not the motive either of that establishment or of the discoveries which gave occasion to it; and the nature, extent, and limits of that utility are not, perhaps, well understood at this day."[4] Smith was contrasting what the motives should have been with what the uneducated public believed them to be. What they really were he thought he understood well enough; namely, to acquire precious metals and to obtain high profits through monopolistic exploitation of colonial markets. One of Smith's main objectives in writing the *Wealth of Nations* was to refute mercantilism by demonstrating the theoretical folly and practical impossibility of an indefinite accumulation of the precious metals. Nevertheless, monopoly overshadows not only treasure but everything else in his learned and illuminating analysis of colonial policies. Although Smith repeatedly pilloried businessmen and the craft guilds for monopolistic practices in England,[5] he did not argue, as has been fashionable in recent decades, that limitation by monopolies of domestic opportunities for investment and employment drove capital and labor into imperialistic ventures.

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[1] I use the term "monopoly" as it was defined by H. de B. Gibbins in his *British Commerce and Colonies from Elizabeth to Victoria* (London, 1897, p. 15): "The possession of a monopoly means the possession of the *sole right* to deal in a certain article or to trade with a certain country; and this sole right might be granted either to individuals or to companies, or indeed might be claimed by a nation, as, *e.g.*, when England claimed the sole right to trade with her American colonies, and tried to force them to deal only with her, and forbade them to carry on manufactures on their own account." Under *monopoly* I also include imperfect competition resulting from staple ports, convoyed fleets, royal favoritism, and other governmental or institutional restrictions.

[2] Owing to the fatal illness of my Mother, I was unable to read this paper. I am deeply indebted to my colleague and friend, John U. Nef, for presenting it for me, upon very short notice.

[3] Grover Clark, *The Balance Sheets of Imperialism: Facts and Figures on Colonies* (New York, 1936), p. 5.

[4] *Wealth of Nations* (Cannan ed., London, 1904), Vol. II, p. 60.

Focusing our attention upon the foundation and the trade of the five leading colonial empires before 1800—the Portuguese, Spanish, Dutch, French, and English—we shall endeavor to determine the extent to which a desire to attain monopoly was a factor in the overseas expansion of Europe. We shall also see to what extent and in what respects the colonial trade, governed by the vague principles of mercantilism throughout the three centuries under review, was monopolistic or competitive.

II. *Portugal*

Most writers on mercantilism have neglected Portugal, and its colonial policy has attracted surprisingly little research. The destruction of a large mass of colonial papers in the Torre do Tombo Archives by the earthquake and ensuing fire on November 1, 1755, and the silence of the early chroniclers on such prosaic matters as trade and navigation have deterred many scholars interested in the Portuguese colonial system and seriously handicapped those who have persevered. Consequently, inadequate knowledge may explain the tendency to dismiss the Portuguese empire with the derogatory conclusions that it consisted only of a chain of forts and trading stations, developed no new institutions, set no important precedents, and made no significant contributions to colonial theory. Although precise information and many details are lacking, we know that Portugal discovered the all-water route to the East Indies, established the first contacts with the natives, forged a colossal empire, exclusively controlled the East India trade for almost a century, solved a host of problems before any rival appeared on the scene, and smoothed the paths of Holland, England, and France to trade and empire in the East. Not the least service, or disservice of Portugal was to furnish other powers a classic example of absolute monopoly in colonial trade.

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[5] See, for example, *op. cit.*, Vol. I, pp. 63-64, 68-69, 148, 426-427, 435; Vol. II, pp. 19, 146, 245-246,

A key figure in the early overseas expansion of Europe was Prince Henry the Navigator. The conquest of Céuta in 1415 and the expedition he led three years later to repel a Moorish counterattack against this stronghold permanently fixed the attention of Prince Henry upon Africa. The tragic failure of Portuguese arms against Tangier in 1437 convinced him that Portugal's future lay in the utilization of sea power along the western coast of Africa and in the islands of the eastern Atlantic. As an adjunct to his systematic voyages of exploration, Henry began about 1420 to construct the astronomical observatory, naval arsenal, and institute for nautical research on Cape Sagres at what later became known as the *Villa do Infante*. Whether Henry established a formal school of geography remains a disputed issue. But he assembled Christian, Moorish, and Jewish scientists; provided them with excellent facilities; and gave them favorable working conditions. Research in geography, mathematics, and astronomy was pursued intermittently, if not continuously; and the results were applied to nautical instruments, naval architecture, and navigation. Henry's captains went to sea in good vessels and equipped with the best geographic data then known, and their reports at the end of the voyages provided valuable source material for the scientists on shore. Henry pushed his practical and scientific work forward for four decades, and the Portuguese kings continued it after his death. Great advances in the art and instruments of navigation, marine architecture, and geography resulted. The good ships and skilled mariners in Portugal and southwestern Spain, where Portuguese skills infiltrated, were important factors in the discovery of America and of the all-water route to the East Indies.[6]

The early Portuguese chroniclers pictured Prince Henry as a recluse, who renounced the pleasures of the Court, to live, at least the last two decades of his life, immersed in study, on the sterile promontory of Sagres, motivated only by intellectual curiosity and a zealous desire to turn the flanks of Islam by skirting the western coast of Africa and effecting a union with a fabled Christian potentate somewhere in eastern Africa. His resources were supposedly drawn from the enormous revenues derived from his grand mastership of the Order of Christ, and trade was of strictly secondary importance. The chroniclers regarded Henry's exploits as a prolongation of the crusades.[7] What his ultimate goals were one cannot say. But in his proximate aims and his methods he bore more resemblance to Commodore Vanderbilt than to Saint Francis of Assisi. Recent research has demonstrated that Henry was not a religious zealot devoid of worldly concerns and pecuniary aims but a company promoter, slave trader, and monopolistic exploiter. Through political influence this "ascetic" Prince obtained a monopoly on woad-dyeing in all Portugal, and he controlled the cloth industry in the provinces of Beira and Minho. He had the exclusive right to manufacture and sell white and dark soap in the entire kingdom. In 1440 Henry secured the exclusive privilege of sardine and tuna fishing off the Algarve coast for the Pescaria do Infante, a company ostensibly organized to end the unbearable tolls levied upon fishermen by the owners of vessels and equipment. Yet he claimed one-fifth of the profits for himself. Prince Henry formed a company in 1441 to enjoy a monopoly on trade with the Canary Islands not belonging to Spain. He loaned the company funds of the Order of Christ at 6 per cent and exacted a fifth of the profits for his services as a promoter. Derived from the capture of slaves and the cheap acquisition of produce, the returns amounted to 80 per cent in some years; and apparently Henry levied his toll until his death twenty years later. In 1450 Henry induced the Crown to force the company floated by foreigners the previous decade, to exploit a monopoly on the coral industry, to allow Portuguese subjects, including Henry, of course, to participate in the enterprise.[8]

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[6] Samuel E. Morison, *Admiral of the Ocean Sea* (Boston, 1942), Vol. I, pp. xl-xli; C. R. Beazley, *Prince Henry the Navigator* (London and New York, 1923 ed.), pp. 160 ff.

[7] Gomes Eannes de Azurara, *Conquests and Discoveries of Henry the Navigator* (Eng. tr., London, 1936), pp. 130-135. *Cf.* C. R. Beazley, *op. cit.*, pp. 157-159; George Young, *Portugal Old and Young* (Oxford, 1917), pp. 98 ff.; W. W. Hunter, *A History of British India* (London, 1899), Vol. I, pp. 72-73, 90.

What interested Prince Henry in Africa, in the beginning, was the gold brought across the Sahara by caravans; after about 1441, the gold dust and the rich slave-raiding territory found on the west African coast; and, finally, the hope of reaching the East Indies by water, thus giving Portugal complete control over the spice trade of all Europe.[9] In view of Henry's acquisitiveness, his unwillingness to permit either foreigners or compatriots to trade or sail along the coast of Africa is not surprising. Until the gold dust and slaves began to pour into Portugal in significant quantities in the early 1440's, trade and exploration were confined to the one or two vessels a year Henry was ordinarily able to send out. Since the new opportunities exceeded Henry's resources, he organized the First Lagos Company in 1444 and the Second Lagos Company in 1447 for trade and exploration—to promote more trade. In 1449 he set up an affiliate of the Pescaria do Infante to monopolize the fisheries off the African coast. After Henry's death the second Lagos Company was dissolved, but the trade was not thrown open.

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[8] M. A. Hedwig Fitzler, "Portugiesische Handelsgesellschaften des 15. und beginnenden 16. Jahrhunderts," *Vierteljahrschrift für Sozial- und Wirtschaftsgeschichte,* Vol. XXV (1932), pp. 213-221, 231-234.

[9] Paul Leroy-Beaulieu, *De la Colonisation chez les Peuples Modernes* (Paris, 1874), p. 48.

For the remainder of the fifteenth century it was farmed out by the Crown as an exclusive privilege to Portuguese companies and subjects. Not until after the papal bulls of Alexander VI and the Treaty of Tordesillas of 1494 had divided the "world" between the two Iberian powers did Portugal concede to Spain the right to fish in west African waters.[10]

When the acquisition of gold and slaves progressed, and the prospects of finding an all-water route to the Indies brightened, as the intrepid explorers pushed down the African coast, Portugal obtained one papal bull after another forbidding all other powers to trade in the new territory and to navigate in the new seas. The reluctance of Protestant countries for almost a century to violate the claims of Portugal and Spain suggests that the bulls were not mere scraps of paper,[11] but the formidable sea power of the Iberian states was doubtless the primary factor in the initial success of exclusion. The valuable prizes in hand, and believed to be in the offing, were strong incentives for Portugal's precedent of rigidly excluding other nations from overseas dominions, followed, with few and generally brief exceptions, by every other colonial power until the nineteenth century. If the rewards of Portuguese discovery and exploration had appeared less valuable, the subsequent pattern of colonial trade might have been more liberal and international relations somewhat less turbulent.

Vasco da Gama returned from his discovery of the Cape of Good Hope route to the East Indies with spices and other oriental products that yielded approximately 6,000 per cent on the entire cost; and Cabral's voyage four years later, which accidentally established the Portuguese claim to Brazil, paid a handsome profit. With such fabulous returns, the Crown was bound to establish the monopolistic system prevailing in the African trade. In the first three quarters of the sixteenth century vessels went to the East Indies only at the expense and the risk of the king. The king sold licenses to private traders and companies to send goods to the Indies and to import oriental products; but he soon began to take the spice trade into his own hands, and by 1520 his monopoly was complete. Portugal endeavored not only to supply Europe with all her spices but to take over the commerce and the carrying trade of India and the East Indies with China, Japan, Africa, and the Near East. How ruthlessly Portugal pursued this aim is shown by a proclamation of 1524 providing that "the penalty to a native captain found in Indian waters without a Portuguese license was death and seizure of his ship and property. The officials took care, before granting the permit, to secure a lion's share in the profits of the voyage."[12] The Portuguese soon realized they could not attain their objectives without seizing political control over key positions. In the first half of the sixteenth century intrigue and the sword gave Portugal such strategic points as Hormuz, Diu, Goa, Malacca, and Macao; and either directly or through alliances she controlled most of their hinterlands. By establishing or maintaining friendly dynasties or parties in power, the Portuguese dictated many treaties that excluded all alien traders and either exempted the Portuguese from customs duties or granted them lower rates than native merchants paid. Furthermore, the rulers of Calicut, Malabar, Ceylon, and the Moluccas were forced by treaty to sell all the pepper, ginger, cinnamon, cloves, and nutmeg in their kingdoms exclusively to the Portuguese government. Whenever the quantity of any spice was excessive, that is, was greater than would yield the maximum net revenue to the intruding monopolist, the surplus was destroyed on the spot.[13]

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[10] M. A. Hedwig Fitzler, "Überblick über die portugiesischen Überseehandelsgesellschaften des 15.—18. Jahrhunderts," *Vierteljahrschrift für Sozial- und Wirtschaftsgeschichte*, Vol. XXIV (1931), pp. 283-284; "Portugiesische Handelsgesellschaften des 15. und beginnenden 16. Jahrhunderts," *ibid.*, Vol. XXV (1932), pp. 218, 235-240; Fernand Braudel, "Monnaies et Civilisations: de l'Or du Soudan à l'Argent d'Amérique," *Annales: Économies, Sociétés, Civilisations*, Vol. I (1946), pp. 9-22.

[11] W. W. Hunter, *op. cit.*, Vol. I, pp. 84-86, 186.

For a few years after Magellan's voyage around the world Spain planned to trade with the spice islands via Cape Horn, but Portugal's purchase of the Spanish claim to the Moluccas in 1529 ended this threat. A few French and English interlopers reached the East Indies; but their activities were sporadic and, for the most part, on a small scale.

The only serious violation of the royal monopoly on direct trade with the East Indies was by Portuguese officials. The high prices resulting from the suppression of competition in Portugal and the Indies made smuggling attractive. Since the captains of Portuguese war vessels received less than Dutch sergeants, and other officials were paid accordingly, the temptation to smuggle proved irresistible. Partially to combat this evil, in 1575 the Crown farmed the exclusive right to trade on a twenty-five mile stretch of coast in Cochin-China. Two years later the king began to contract with a company to import spices and deliver them to him at Lisbon at stipulated prices. To another company he farmed the privilege of selling in Lisbon the spices he did not want to market through his factor in the Low Countries. When Philip II succeeded to the Portuguese throne in 1580, he continued to farm the right to import and sell spices and to permit only favorite merchants, willing to pay dearly for royal licenses, to trade with the East Indies. Under the new system spice prices obviously were administered, not competitive; but the corporate monopolists must have been less grasping than their royal predecessor. For in the midst of the Price Revolution, spice prices in Spain dropped precipitately and did not recover the loss for almost half a century.[14] At no time before Portugal lost her supremacy in the East Indies, early in the seventeenth century, did competition govern the purchase or sale of goods either at home or in the colonies.[15]

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[12] W. W. Hunter, *op. cit.*, p. 180.

[13] Charles de Lannoy and Herman vander Linden, *Histoire de l'Expansion Coloniale des Peuples Européens: Portugal et Espagne* (Brussels, 1907), pp. 139-144; Paul Leroy-Beaulieu, *op. cit.*, pp. 48-54; A. H. L. Heeren, *History of the Political System of Europe and Its Colonies* (Eng. tr., Northampton, 1829), Vol. I, pp. 34-39, 79-80; W. W. Hunter, *op. cit.*, Vol. I, pp. 93-174.

Portugal attempted to exclude foreigners from the trade with Brazil, but it appears to have been much more open to natives until 1755 than was the East India trade. In 1502 the exclusive privilege of importing Brazil wood was farmed to a company; but the monopoly ended about 1530, when imports from Spanish America rendered it unattractive. From early in the sixteenth century until the middle of the eighteenth century trade with Brazil was confined to fleets that sailed from Lisbon, touched at Oporto, and stopped at four leading Brazilian ports. Apparently all Portuguese subjects were free to participate, but we do not know the extent to which formal associations or informal agreements among businessmen or other trading bodies limited competition. By 1750 concentration of the trade in the hands of the Jesuits was so great that the Marquis of Pombal preferred an absolute legal monopoly. Consequently, he divided the trade between the Maranhao Company, chartered in 1755, and the Pernambuco Company, established in 1759. The companies maintained their monopolies on trade with Brazil until their dissolution in 1778 and 1780 respectively. After experimenting with a concession of the diamond mines discovered in 1730, under a strict limitation on the number of workers who might be employed, the Portuguese government adopted drastic measures to curtail smuggling, limit production, maintain prices, and maximize revenues. No building might be erected, and no unauthorized person might reside, within a hundred leagues of the mine. Apparently the supply of diamonds was restricted, but the agriculture and industry extinguished in the blighted area might have been far more productive. Like other colonial powers in America, Portugal restricted or prohibited certain types of industry to protect vested interests at home. To prevent competition with Portuguese wines, olives, and olive oil, no grape vines or olive trees might be planted. The production of raw sugar was encouraged in every possible way, but refineries were banned. Although the Portuguese textile industry languished after the Treaty of Methuen in 1703, only coarse linen and cotton goods to clothe the slaves and poor whites might be produced in Brazil. Early in the nineteenth century skilled spinners who had set up spindles were banished from the colony.[16]

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[14] Earl J. Hamilton, *American Treasure and the Price Revolution in Spain, 1503-1660* (Cambridge, Mass., 1934), pp. 232-233.

[15] M. A. Hedwig Fitzler, "Überblick über die portugiesischen Überseehandelsgesellschaften des 15.—18. Jahrhunderts," *Vierteljahreschrift für Sozial- und Wirtschaftsgeschichte,* Vol. XXIV (1931), pp. 285-287; E. P. Cheyney, *European Background of American History* (New York and London, 1904), pp. 131-132; W. W. Hunter, *op. cit.,* Vol. I, pp. 175-189; A. H. L. Heeren, *op. cit.,* Vol. I, p. 114; Paul Leroy-Beaulieu, *op. cit.,* pp. 55 ff.; Eli F. Hecksher, *Mercantilism* (Eng. tr., London, 1935), Vol. I, pp. 341-342.

III. *Spain*

The high rewards demanded by Columbus in negotiating the contract for his first voyage shows that, whatever other incentives he may have had, his economic motivation was strong;[17] and the delay of the Catholic Kings in accepting his terms, after they had accepted his plans, indicates that they shared his concern for the commercial opportunities.[18] The thorough search by Columbus for the precious metals and valuable objects of commerce and the keen interest of Ferdinand and Isabella in what he found point in the same direction.[19] How far it was from the intention of the Spanish monarchs to share the discovery with any other power is shown by their haste in obtaining a papal bull confirming their claims and by the fact that from the beginning no Spaniards except Castilians were allowed to trade with the New World. Monopolistic chartered companies developed late and never controlled a major portion of the trade. The only important examples were the exclusive privilege of trading with Venezuela granted the Caracas Company in 1728, and exercised for half a century,[20] and the monopoly on trade with the Philippines given the Philippine Company in 1785. But, as in the case of Portugal, royal regulation, semistate shipping, and the funneling of commerce through staple ports facilitated private monopolies.[21]

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[16] Herman Merivale, *Lectures on Colonization and Colonies*, Vol. I (London, 1841), pp. 51-53; A. H. L. Heeren, *op. cit.*, Vol. I, pp. 81-82, 161-162, 229-230, 289; Charles de Lannoy and Herman vander Linden, *op. cit.*, Vol. I, pp. 155-170; Paul Leroy-Beaulieu, *op. cit.*, pp. 61-64; M. A. Hedwig Fitzler, "Überblick über die portugiesischen Überseehandelsgesellschaften des 15.—18. Jahrhunderts," *Vierteljahrschrift für Sozial- und Wirtschaftsgeschichte*, Vol. XXIV (1931), pp. 295-298; "Portugiesische Handelsgesellschaften des 15. und beginnenden 16. Jahrhunderts," *ibid.*, Vol. XXV (1932), pp. 241-244.

[17] In his *Kolonien, Kolonialpolitik und Auswanderung* (2nd ed., Leipzig and Heidelberg, 1856, p. 48) Wilhelm Roscher argues that religion strongly motivated not only Columbus but Cortez and Pizarro as well. Roscher recognizes that Columbus wanted money but maintains that it was only as a means toward religious ends. Cf. Wilhelm Roscher, *Zur Geschichte der englischen Volkswirtschaftslehre im Sechzehnten und Siebzehnten Jahrhundert* (n. p., n. d.), pp. 22-23.

[18] Samuel E. Morison, *op. cit.*, Vol. I, pp. 134-139.

[19] According to Adam Smith, an unexcelled judge of the springs of human action, "the pious purpose of converting the natives to Christianity . . . sanctified the injustice" of occupying their territory. "But the hope of finding treasures of gold there, was the sole motive which prompted to undertake it." *Op. cit.*, Vol. II, p. 63.

[20] Roland D. Hussey, *The Caracas Company, 1728-1784* (Cambridge, Mass., 1934), pp. 35 ff.; Paul Leroy-Beaulieu, *op. cit.*, p. 36.

[21] Gervasio de Artíñano, *Historia del Comercio con las Indias durante el Dominio de los Austrias* (Barcelona, 1917), pp. 51-94; J. H. Parry, *The Spanish Theory of Empire in the*

The early discovery of gold in the Antilles and the fabulous amounts of silver secured after regular mining by Spaniards began in Mexico and Peru, in an age when treasure was supposed to provide the key to wealth and power, naturally induced one of the most rigid systems of state regulation of colonial trade ever adopted by any country. With infrequent and unimportant exceptions, licenses had to be obtained from, or through, the House of Trade (Casa de la Contratación), established at Seville in 1503 and transferred to Cádiz in 1717, for all vessels, merchants, and emigrants bound for America. All ships had to return to the House of Trade to pass a severe inspection, unload their cargoes, and deliver their gold and silver. In a vain effort to obstruct the leakage of Peruvian treasure into foreign hands, Castile imposed destructive restrictions—limitation of tonnage, absolute prohibitions, and prohibitive duties—upon trade between Buenos Aires and Spain on the one hand and Peru on the other. The economic development of the rich River Plate region was retarded for generations. To prevent bullion from being smuggled into, or captured by, other nations, almost all trade with the New World was confined to two convoyed fleets after the middle of the sixteenth century. The fleets sailed from and returned to the House of Trade once a year when commerce was flourishing and once every three or four years when it was stagnant. The irregular and infrequent sailings from Spain, inevitable under the fleet system, facilitated the inroads of Dutch, French, and English interlopers upon Spanish exclusionism. Arbitrary searches of foreign vessels in Caribbean waters and other vigorous measures of Spain to suppress the contraband trade were a factor in several wars and were the principal cause of the long conflict with England in 1739-50.[22]

Despite the pressure of special interests in Spain, the policy toward the commerce and industry of the American colonies was relatively liberal. Intercolonial trade not considered injurious to Castilian interests, nor likely to facilitate the smuggling of specie out of the realm, was subjected to low duties and suffered few restrictions.[23] No systematic attempts were made to prevent manufactures for domestic consumption, and so long as an industry did not compete with Castile

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Sixteenth Century (Cambridge, 1940), pp. 3-5, 39; André E. Sayous, "Partnerships in the Trade between Spain and America and also in the Spanish Colonies in the Sixteenth Century," *Journal of Economic and Business History,* Vol. I (1928-29), pp. 284 ff.

[22] Earl J. Hamilton, "Spanish Mercantilism before 1700," *Facts and Factors in Economic History* (Cambridge, Mass., 1932), pp. 224-225; J. Piernas Hurtado, *La Casa de la Contratación de las Indias* (Madrid, 1907), pp. 17-55; C. H. Haring, *Trade and Navigation between Spain and the Indies* (Cambridge, Mass., 1918), pp. 21-122; Alfred Caldecott, *English Colonization and Empire* (London, 1891), p. 29; A. H. L. Heeren, *op. cit.,* Vol. I, pp. 288-289; James Mill, *History of British India* (5th ed., London, 1858), Vol. III, p. 36.

[23] The numerous and complicated restrictions on trade between Peru and Central America, Mexico and Central America, and Mexico and the Philippines were designed either to protect Spanish industry or to retain specie in the realm.

in an external market it remained undisturbed. For example, woolen and silk manufactures, objects of great concern to the mercantilist statesmen and rulers in Spain, were permitted. But in the seventeenth century exports to other colonies were impeded; and the requirement in 1628 of a license from the Council of the Indies to make cloth in America, ostensibly to protect the Indians from exploitation, was designed to protect Castilian industry. Yet Spain was the only country to allow legal operation of refineries in the sugar colonies. At various times the government outlawed the cultivation of saffron, hemp, flax, tobacco, and olives; but at other times the production of hemp and flax was heavily subsidized. The early prohibitions against vineyards in Peru were not enforced; and no attention was paid to the order received by the Mexican Viceroy early in the nineteenth century to have all the vineyards in northern Mexico destroyed, because the Cádiz Guild Merchant had complained that they were disastrously reducing wine imports from Spain.[24]

Until 1785 goods shipped between Spain and the Philippines had to pass over the bad roads and high mountains between the Mexican ports of Veracruz and Acapulco; and the tonnage, value of cargoes, and amounts of specie that might move between New Spain and the Philippines were severely restricted. The members of the Guild Merchant at Mexico City doubtless utilized their opportunity to levy a monopolistic toll. For more than two centuries all lawful European imports into Mexico were carried to Veracruz by the New Spain Fleet and those of the entire western coast of South America to Lima via Panama by the Galleons. The restriction of the Mexican and Peruvian commerce to one metropolitan and two colonial ports enabled small groups of traders in the Merchant Guilds at Seville, Cádiz, Mexico City, and Lima to control the volume and dictate the prices of imports and exports in Spain and America. The habilitation of other ports in Spain and America by the so-called "Free Trade Acts" (Libre Comercio) of Charles III and his progressive ministers beginning in 1765 induced some competition. But even in the last years of peace before the outbreak of the wars of the French Revolution, in 1793, ended peacetime trade between Spain and her colonies four-fifths of the American commerce passed through Cádiz. It is highly significant that five of the nine indictments against Spanish rule circulated throughout Hispanic America by the revolutionaries in 1808 concerned monopolistic abuses;

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[24] Alexander von Humboldt, *Essai Politique sur le Royaume de la Nouvelle Espagne* (2nd ed., Paris, 1827), Vol. II, pp. 483-485; J. W. Horrocks, *A Short History of Mercantilism* (New York, n. d.), pp. 100 ff.; Earl J. Hamilton, "Spanish Mercantilism before 1700," *Facts and Factors*, pp. 227-228; Herman Merivale, *op. cit.*, pp. 9-14.

and the Cádiz Guild Merchant was bitterly attacked. One of the chief inducements to fight held out by the intellectual leaders in Latin America during the long War of Independence was the promise of fair prices for produce and for imports through the suppression of the Cádiz monopoly.[25]

IV. *Holland*

As Spain declined during the seventeenth century, Holland became the foremost nation in the colonial trade, and its United East India Company the leading economic enterprise in Europe. The company was the instrument through which the Dutch empire in the East was obtained. But there was much less innovation in the Dutch policies than in those of Portugal and rather less than in those of Spain. Furthermore, the original policies remained surprisingly static until the East India Company expired in 1795.[26] Holland was never a major colonial power in the West.

In the Dutch East Indies the flag not only followed the private trader but was firmly planted there by him. When Phillip II, in 1594, closed the Lisbon harbor to the Dutch vessels that had been distributing Portuguese spices in northern Europe, in an effort to bring the Dutch rebellion against Spanish rule to an end, the enterprising traders began to sail directly to the East Indies. Commercial success and the disclosure of unsuspected Portuguese weakness in the East induced voyages in rapid succession. In the last five years of the sixteenth century sixty-odd Dutch vessels sailed to the East Indies. The early traders protested that they had to deal with semibarbarous rulers who did not share European conceptions of law and order or of the sanctity of contracts. The Dutch also complained of cutthroat competition with their compatriots in selling European wares and in buying native products. They did lack knowledge of political conditions and of local markets; and owing to the long period of waiting for the returns, the heavy outlay for transportation, and the great and unpredictable risks involved, their capital was pathetically inadequate. To raise funds and end "abuses," in 1602 the traders and other Dutch businessmen formed the United East India Company. Its charter gave it a monopoly on trade and navigation with the East for twenty-one years and authorized it to acquire territory, establish fortresses, and make war and peace within its sphere of operations.[27]

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[25] Henry C. Morris, *The History of Colonization* (New York, 1900), Vol. I, pp. 261-276, 295-296; C. H. Haring, *op. cit.*, pp. 123 ff.; Paul Leroy-Beaulieu, *op. cit.*, pp. 9-10, 21-38; Herman Merivale, *op. cit.*, pp. 7-8; Adam Smith, *op. cit.*, Vol. II, pp. 77-78, 113.

[26] We are told by Professor Clive Day, upon the authority of a leading Dutch historian of the Company, that "it shows no development in its organization or policy. There are marked changes, from one period to another, in the extent of its operations, and in the financial results, but the underlying principles of its actions remain almost the same." *The Policy and Administration of the Dutch in Java* (New York, 1904), p. 39.

Historians of colonial policy and of the United East India Company agree that almost the only purpose of the Dutch in the East Indies before 1795 was to earn high profits by acquiring and holding a monopoly on spices. I have found no evidence that they ever pretended to Christianize or lift up the natives. In fighting the Portuguese and the native rulers for control over spices, the Dutch adopted the Portuguese tactics of supporting a dynasty or faction and exacting monopolistic privileges after placing it in power. They also copied the Portuguese preference for the spice islands rather than for the mainlands and of trying to attain their commercial objectives by holding a chain of island fortresses. Like the Portuguese, the Dutch early began the practice of destroying surplus spices; that is, the portion of the supply that might depress prices below the point that would maximize their return. But they pushed this nefarious policy much farther. They limited production to certain selected areas, carefully regulated the output, regularly dispatched inspectors to see that the prohibition of production was obeyed, and not only chopped down spice trees but lopped off heads, to leave no producers, when this seemed the only way to enforce compliance.[28]

The ridiculous rigidity in the policies of the East India Company, into which it may have been lulled by monopoly and conspicuous success in its first hundred years, was a major factor in its decadence. Even in the most peaceful years of the eighteenth century vessels returning from the Indies had to sail around the Orkneys instead of through the English Channel, as prudence had dictated during the long conflicts with England in the second half of the preceding century. Even after light, fast, and strong English vessels began to compete most effectively in the carrying trade in the East, the Dutch vessels had to incur the heavy and needless expense of passing by Batavia for inspection on each voyage. The monopoly of the East India Company injured not only the natives but the Dutch as well. For example, when the Cromwellian and Stuart Navigation Acts deprived Dutch vessels of their normal cargoes, the Eastern carrying trade might have afforded some relief had it not been closed by the East India Company's monopoly. As in the case of the Portuguese, the chief infringement of the monopoly was by the underpaid officials of the East India Company. But the natives benefited very little from this breach, for the officials arbitrarily set up monopolies of their own and exploited them mercilessly. The murder of English subjects at Amboina in 1623, in defense of the monopoly, embittered relations with England for generations; and more than once Holland went to war to defend the territory or the trade of the East India Company.[29]

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[27] O. van Rees, *Geschiedenis der Koloniale Politiek van de Republiek der Vereenigde Nederlanden* (Utrecht, 1868), pp. 1-26; Eli F. Heckshér, *op. cit.*, pp. 351-360; Paul Leroy-Beaulieu, *op. cit.*, pp. 67-73; A. H. L. Heeren, *op. cit.*, Vol. I, pp. 116-117; H. E. Egerton, "The Transference of Colonial Power to the United Provinces and England," *Cambridge Modern History* (Cambridge, 1934 ed.), Vol. IV, pp. 729-732.

[28] Henry C. Morris, *op. cit.*, Vol. I, p. 334; Clive Day, *op cit.*, pp. 88 ff.; Eli F. Hecksher, *op. cit.*, Vol. I, pp. 360-361; A. H. L. Heeren, *op. cit.*, Vol. I, pp. 118-119; Paul Leroy-Beaulieu, *op. cit.*, pp. 74-82; Herman Merivale, *op. cit.*, Vol. I, pp. 54-55; O. van Rees, *op. cit.*, pp. 285 ff.; George Edmundson, "Frederick Henry, Prince of Orange," *Cambridge Modern History* (Cambridge, 1934 ed.), Vol. IV, pp. 710-711.

Even though rich booty from privateering against Spain, high profits from trading with the Spanish colonies, and a monopoly on trade from Newfoundland to Tierra del Fuego were held out as inducements, private Dutch investors were not attracted by the stock of the Dutch West India Company, organized in 1621. The government had to subscribe for half the shares and to exert the utmost pressure upon financiers to take the balance. Apparently the clever Dutch businessman saw no opportunity to profit by war even against a power at once as weak and as rich in land as was the Spain of Philip IV. The West India Company has been praised by economists for throwing open the trade with Surinam and taxing it lightly instead of exercising its monopoly, as well as for attempting to develop its possessions in the New World. But apparently these policies did not pay. In 1674 the West India Company was dissolved, after having dissipated most of its capital.[30] "Nevertheless, upon the ruins of the defunct institution another was to rise. The States-General, in 1674, licensed the new organization with a capital of 6,000,000 florins. . . . Although active until 1790 it never flourished, and its possessions were few."[31]

V. *France*

Of the great colonial powers before 1800, France was the last to enter the field, the least original in its policies, and the least successful in the use of monopolies to open up and maintain colonial commerce. Hence, for my purpose, French experience merits only brief attention.

Since nothing had come from the Company of Sumatra, Java, and Moluccas, chartered in 1600, Henry IV established the first French East India Company in 1604, with exclusive rights to trade, navigate, and colonize in India and the East Indies. Except for 1769-84, trade and navigation with the East under the *ancien régime* remained in the hands of a monopoly. After the vigorous efforts of both Richelieu and Mazarin had utterly failed to vitalize the East India trade, Colbert gave his East India Company, chartered in 1664, the exclusive privilege for fifty years of trading and navigating from the Cape of Good Hope east to the Straits of Magellan, a heavy bounty on imports and exports, a royal guarantee against losses in the first six years, and naval escorts for its vessels at public expense whenever needed. In view of the uncritical acceptance by many liberals and even conservatives of the communist theory of imperialism, repeated with increasing asperity by writers and statesmen from Rosa Luxemburg[32] and Rudolf Hilferding[33] to Lenin and Molotov, one might expect that French capitalists in the age of Louis XIV, the war lord of Europe, were the instigators and eager beneficiaries of these opportunities. But neither financiers, nor overseas traders, nor any other capitalists cared to invest. When venture capital was not forthcoming, Colbert and Louis XIV appealed to the public to buy the East India shares for the glory of God, country, and king—in much the same fashion that the Russian Court was to appeal for funds for the exploitation of the financially unattractive timber concessions along the Yalu River on the eve of the Russo-Japanese war.[34] The royal treasury actually had to put up more than half the money for the French East India Company; and most of the remainder came from public officials, less able than businessmen to resist the formidable pressure to invest, exerted not only by Colbert but by Louis XIV himself. The company lost more than two-thirds of its capital in its first twenty years, and it languished until the brief interval when the organizational skill and inflationary policies of John Law injected life into the East India trade. For about three decades after the collapse of the Mississippi Bubble the monopolistic privileges could not keep the East India Company going without liberal subsidies from the royal treasury. The Seven Years' War stripped the company of most of the territorial gains achieved during the blaze of glory under Dupleix in the middle of the eighteenth century; and in 1769 physiocratic theories, marshalled by Morellet, succeeded in suppressing the monopoly on trade with the East. The flourishing commerce in the brief interval of freedom seemed to vindicate the physiocrats, but in 1785 the monopoly was restored on the ground that cutthroat competition among French traders was ruinously depressing the prices they received and raising those they paid in the East.[35]

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[29] Clive Day, *op. cit.*, pp. 102-105, 119-123; Paul Leroy-Beaulieu, *op. cit.*, pp. 77-93; A. H. L. Heeren, *op. cit.*, Vol. II, pp. 108-110, 157-158, 199-200; H. E. Egerton, *op. cit.*, Vol. IV, pp. 737, 745.

[30] Eli F. Hecksher, *op. cit.*, Vol. I, p. 357; H. E. Egerton, *op. cit.*, Vol. IV, p. 749; Herman Merivale, *op. cit.*, Vol. I, p. 56; Paul Leroy-Beaulieu, *op. cit.*, pp. 91-92; E. P. Cheyney, *op. cit.*, pp. 153-155; Adam Smith, *op. cit.*, Vol. II, pp. 72, 134-135.

[31] Henry C. Morris, *op. cit.*, Vol. I, p. 352; H. T. Colenbrander, ***Koloniale Geschiedenis***, Vol. II ('S-Gravenhage, 1925), pp. 1-24.

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[32] *Die Akkumulation des Kapitals* (Leipzig, 1921 ed.), pp. 339 ff.

[33] "Das Finanzkapital," *Marx-Studien*, Vol. III (Vienna, 1910), pp. 220 ff.

[34] Eugene Staley, *War and the Private Investor* (New York, 1935), pp. 55-62; Lionel Robbins, *The Economic Causes of War* (London, 1939), pp. 47-49. Cf. Jacob Viner, "International Finance and Balance of Power Diplomacy, 1880-1914," *The Southwestern Political and Social Science Quarterly*, Vol. IX (1928-29), pp. 447-451.

Haiti, by far the most important of all the French colonies under the *ancien régime,* was founded by buccaneers and smugglers without the encouragement or even the knowledge of the government. But most of the leading French colonies in the New World were established under patents granting privileges in which a monopoly on trade, in return for the settlement of a certain number of colonists within a limited period, figured prominently. When the colonial entrepreneurs lost money and their privileges lapsed, a new company was usually formed to exploit them. In the century between Mazarin and John Law the trade of most of the French colonies in America was theoretically controlled by a monopoly most of the time. But Colbert forced the West India Company to allow any French vessel to trade in the sugar colonies upon the payment of duties to the company; and the proximity of Canada to the active traders and accomplished smugglers of New England, together with the great need of the Caribbean islands for Anglo-American provisions and timber, meant that a great many vessels came from other countries as well. One can hardly imagine the descendants of freebooters and free traders or the progenitors of Toussaint l'Ouverture's soldiers in Haiti having much respect for monopolistic privileges at any time. Between 1721 and 1731 the trade of the American colonies was thrown open to all Frenchmen, and apparently it remained open during the remainder of the century. In 1784 the vessels of the United States were permitted to trade with the French possessions in the Caribbean. In the freedom of their trade with all subjects of the motherland, the French colonies probably ranked next to those of England, and in *de facto* trade with the outside world the French colonies probably ranked first. The French colonies also suffered from the fewest restrictions to protect vested interests in the mother country. The only obstructions that seem to have hampered the colonies very much were the prohibition on the erection of new sugar refineries in 1684 and the law of 1698 suppressing the ones already in operation. As a compensation the colonies enjoyed a monopoly on the metropolitan sugar market. The relative economic freedom was doubtless a vital factor in the prosperous agriculture and commerce of Saint Christopher, Martinique, Guadeloupe, and Haiti.[36]

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[35] Alfred Zimmermann, *Kolonialgeschichtliche Studien* (Oldenburg and Leipzig, 1895), pp. 126 ff.; C. W. Cole, *Colbert and a Century of French Mercantilism* (New York, 1939), Vol. I, pp. 476-524; Eli F. Hecksher, *op. cit.,* Vol. I, pp. 346-348; A. H. L. Heeren, *op. cit.,* Vol. I, 106-107, 161; Paul Leroy-Beaulieu, *op. cit.,* pp. 197-201.

[36] E. Levasseur, *Histoire du Commerce de la France* (Paris, 1911), Vol. I, pp. 481-489; A. H. L. Heeren, *op. cit.,* Vol. I, pp. 220-221, 284-285; Herman Merivale, *op. cit.,* Vol. I,

VI. *England*

On the whole, England was the leading colonial power in the East and the West before 1800, as well as after. Through monopoly she established her trade and empire in the East, and through promises of monopoly she motivated her early voyages and first successful and unsuccessful colonial ventures in the West. Except for the first half century, when the colonies were few and feeble, England excluded other countries from direct trade and navigation with her American plantations. Since leading historians and economists interested in the history of economic thought have lavished study upon English colonial experience, the policies are too familiar to economic historians to require detailed examination. Hence, it seems safe to assume that the general features are known and to limit our consideration to the salient characteristics and results.

The English East India Company, chartered in 1600, was given a monopoly on trade and navigation in the area between the Cape of Good Hope and the Straits of Magellan not occupied by a friendly power. It was the company, formed and administered by merchants, not the government, that built up the empire in the East—to protect and promote trade. The monopoly of navigation lasted until 1813, but from late in the seventeenth century merchants willing to pay the exorbitant freight rates on the company's vessels had the right to send a limited tonnage of goods to the East. The energy and ingenuity of traders and the freedom and vigor of thought in England combined to make interloping much commoner than in any other country, and on several occasions the impecunious Crown granted exemptions from the monopoly for particular voyages in return for substantial fees. Opposition to the monopoly by interloping merchants and liberal economists generally enabled the government to exact increasing rewards, ordinarily in the form of loans at less than the going rate of interest, whenever the privileges were renewed. But in 1793 the company secured an extension of its monopoly by demonstrating the enormous profits of recent years and asking whether the objections of mere theorists should delude Parliament into tampering with such a successful enterprise. The "theorists" happened to be interloping merchants as innocent of, and unsympathetic toward, economics as is a typical member of the National Association of Manufacturers. Despite the relatively high and steadily increasing remuneration of the company's employees, it had almost as much difficulty in preventing the abuse of the company and the natives by the petty private monopolies

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pp. 57-60; Paul Leroy-Beaulieu, *op. cit.*, pp. 157-190; C. W. Cole, *op. cit.*, Vol. II, pp. 1-82; Adam Smith, *op. cit.*, Vol. II, pp. 82-83; Henri Sée, *Histoire Economique de la France* (Paris, 1939), pp. 245-247.

of its servants in the East as did Portugal or Holland. Even as late as the 1760's, the company's Eastern employees dictated the prices they paid for native products and the prices they charged for such imported necessities as salt, tobacco, and betel nuts. Furthermore, they attempted to limit the output of the produce they purchased and to require the natives to buy minimum amounts of what they sold—after the fashion of the seventeenth-century tax farmers in France and Spain who forced the poor to pay for a certain amount of salt whether they used it or not. How prevalent private trading by the company's officers must have been is shown by a minute from Lord Clive on September 19, 1766. He informed the Select Committee that " 'a Governor ought not to be embarrassed with private business. He ought to be free from every occupation in which his judgment can possibly be biased by his interest.' He, therefore, proposed, that the Governor should receive a commission of one and one-eighth per cent upon the revenues; and in return should take a solemn and public oath, and bind himself in a penalty of £150,000 to derive no emolument or advantage from his situation as Governor of Bengal, beyond this commission, with the usual salary and perquisites: and a covenant to this effect was formally executed by him."[37] Nevertheless, to combat private trading, in 1784, servants of the company returning to England were required to give under oath an inventory of their property and rendered liable to imprisonment and the forfeiture of all their wealth for a false statement.[38]

From Henry VII to James I, English patents for voyages of discovery and for colonization generally provided a monopoly of trade as one of the incentives. The companies that established the initial settlements in Virginia and Massachusetts, the first and most important two of the Thirteen Colonies, had either exclusive privileges or the right to tax commerce conducted by others. But these privileges soon lapsed and were not revived. After the first quarter of the seventeenth century no commercial company monopolized trade with the American colonies south of the Hudson Bay region. The Dutch, whose capital is said to have aided in the foundation of the first English sugar colonies, soon supplied the shipping and took over a considerable percentage of the trade of the Anglo-American plantations. In 1625 England forbade imports of tobacco in foreign vessels, but frequent repetition of the prohibition suggests that it was not enforced. Amendments to the Navigation Acts beginning about 1663 shifted the colonial trade to English vessels, allowed imports only from England, and required that exports of enumerated articles—for the most part industrial raw materials in short supply—be shipped to England. In compensation for these restrictions the colonies were given a virtual monopoly on the metropolitan market for enumerated articles through prohibitions and prohibitive duties. Particularly after 1699, the manufacture and intercolonial shipment of various manufactures were banned in order to protect English industries. Adam Smith probably underestimated the efficacy of these restrictions when he dismissed them as "only impertinent badges of slavery," that neither "cramped" nor "restrained" our industry,[39] but the plethora of advertisements of proscribed manufactures in colonial newspapers indicates that we were "restrained" very little.[40]

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[37] James Mill, *op. cit.,* Vol. III, p. 301.

[38] *Ibid.,* Vol. I, pp. 17-18, 58-59, 79-82, Vol. III, pp. 229-234, 255-262, 287-292; Vol. IV, p. 373; Vol. V, pp. 349-352; Vol. VI, pp. 1-13, 252-253; A. H. L. Heeren, *op. cit.,* Vol. I, pp. 119-121; Vol. II, pp. 95-99, 197-201; H. R. Egerton, *op. cit.,* Vol. IV, pp. 730-731; Paul Leroy-Beaulieu, *op. cit.,* pp. 150-151; Eli F. Hecksher, *op. cit.,* Vol. I, p. 409; Adam Smith, *op. cit.,* Vol. II, pp. 135-136; L. S. Sutherland, "The East India Company in Eighteenth-Century Politics," *Economic History Review,* Vol. XVII (1947), pp. 17-18, 23-26.

In his study of the Navigation Acts, Professor L. A. Harper, who has thoroughly combed the manuscript sources in England and America, concluded that the Acts gave England and the colonies virtual control over the colonial export trade. Through facts and logic he shows that most of the imports came into the Thirteen Colonies in English vessels through legal channels.[41] In his exhaustive study of the records of Thomas and John Hancock, both of whom were notorious smugglers, W. T. Baxter[42] found no evidence that a single foreign vessel participated in trade with the American colonies in the half century prior to the Revolution, when the temptation to smuggle reached its zenith. As Professor Harper has maintained, the Navigation Acts ousted the Dutch from the American trade and gave England the lion's share for several decades. Whether either the colonies or England gained by this diversion is another matter. But there is reason to wonder whether England would not have retained at least as great a proportion of the trade if she had repealed the Navigation Acts at the end of the Seven Years' War.[43] The overwhelming industrial superiority of England over every rival in 1763-75 and the fact that the percentage of American trade obtained by England rose phenomenally in the first quarter-century after the Revolution—in spite of bitter war memories, the loss of commercial connections by English exporters with American importers, and the irritation in this country over our exclusion from legal trade with England's sugar colonies—suggests that a timely repeal of the Navigation Acts and the other restrictions on our economic life might have retained our trade, gained our good will, and possibly averted or delayed the Revolution. But even if the Navigation Acts, not the efficiency of English industry and commerce, did confine the trade of America largely to England, the deleterious effects of the restriction were reduced by the fact that the commerce was not in the hands of a monopolistic company, carried by convoyed fleets at irregular and infrequent intervals, or channeled through a few ports. Adam Smith, who was a keen observer of the American trade in the thriving port of Glasgow and was disposed to see a monopolist wherever he looked, felt that "the number and dispersed situation of the different traders [exporting to America] renders it impossible for them to enter into any general combination" in restraint of trade.[44]

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[39] *Op. cit.*, Vol. II, p. 84.

[40] George L. Beer, *The Origins of the British Colonial System, 1578-1660* (New York, 1908), pp. 16-17, 142, 220-236, 239; Paul Leroy-Beaulieu, *op. cit.*, pp. 99-148; E. P. Cheyney, *op. cit.*, pp. 149-151; Alfred Caldecott, *op. cit.*, p. 23; James A. Williamson, *A Short History of British Expansion* (2nd. ed., New York, 1931), pp. 72, 190, 259-260; H. de B. Gibbins, *op. cit.*, pp. 20-22; Ramsay Muir, *The Expansion of Europe* (Boston and New York, 1927), pp. 40 ff.; Harry H. Johnston, *A History of the Colonization of Africa* (Cambridge, 1913), pp. 169-171, 176; *Sir William Alexander and American Colonization*, Ed. by E. F. Slater (Boston, 1873), p. 244.

[41] *The English Navigation Laws* (New York, 1939), pp. 43, 239, 244, 246, 253, 262-263, 265, 268, 270-274.

[42] *The House of Hancock* (Cambridge, Mass., 1945), p. 297.

[43] Cf. Citizen Talleyrand, *Memoir concerning the Commercial Relations of the United States with England* (Eng. tr., Boston, 1809), pp. 9-10; E. A. Benians, "The Beginnings of the New Empire, 1783-1793," *The Cambridge History of the British Empire*, Vol. II

VII. *Conclusions*

The leading motive for the discovery of America and the Good-Hope route to the East Indies, which marked the dawn of modern times, was the hope of material gain from the spice trade. It is inconceivable that any country would have willingly shared access to such fabulous riches as the spices of the Eastern seas or the gold and silver of Mexico and Peru. Following the example of the Iberian kings,[45] every other European monarch refused to permit any other power to trade with his colonies before the end of the eighteenth century. Furthermore, staple ports, convoyed fleets, prescribed routes, and special privileges—designed to extend and protect commerce and empire—closed most of the colonies to most of the subjects of most of the colonial powers most of the time.

The Portuguese concessions of monopolies on trade and navigation to companies and court favorites in the days of Prince Henry the Naviga-

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(Cambridge, 1940), p. 13; Klaus E. Knorr, *British Colonial Theories, 1570-1850* (Toronto, 1944), pp. 206, 213-219, 251-253.

[44] *Op. cit.*, Vol. II, p. 78; Herman Merivale, *op. cit.*, Vol. I, pp. 70-71, 206, 218; Paul Leroy-Beaulieu, *op. cit.*, pp. 123-124, 139-140; A. H. L. Heeren, *op. cit.*, Vol. II, pp. 90-93.

[45] On August 14, 1633, a body of men, including the farmers of the customs and colonial merchants, who had been consulted on whether trade with Virginia by foreigners should be permitted, "now urged that the example of Spain be followed, and that strangers be prohibited from trading to the colony." George L. Beer, *op. cit.*, p. 233. Cf. J. W. Horrocks, *op. cit.*, pp. 99-100; W. C. Abbott, *The Expansion of Europe* (New York, 1918), p. 308.

tor required exploration at a specified rate,[46] and the kings of England and France promised exclusive trading privileges in their early patents for discovery and colonization. Hence, a monopoly on colonial trade was contractually connected with European expansion into the West. The monopoly on trade granted the Dutch, English, and French East India Companies afforded the incentive to commerce and empire in the East.[47] The issuing governments were convinced that without a joint-stock company[48] enjoying an exclusive privilege of trade and navigation enough capital could not be raised to tide over the long period of waiting for returns, bear the enormous risks, defray the cost of providing and equipping vessels, and "protect" cargoes, merchants, and ships against semibarbarous natives and rulers. Even such an ardent "laissez-fairist" as Jean-Baptiste Say justified monopoly to induce the establishment of trade in "a distant or barbarous area,"[49] just as a patent is granted to reward invention; and Adam Smith had taken a similar position.[50] But both authors insisted that, like a patent, the monopoly should be tolerated for a limited time only. The East India Companies not only held their privileges much longer than was warranted on economic grounds but abused their authority, and petty monopolies by officers and servants on internal trade in the colonies often paralleled the hold of the companies on external commerce.

The monopolistic trading companies depressed the prices of exports and raised those of imports in Europe and the Eastern colonies. In the short run producers suffered, and consumers were permanently oppressed. The high prices paid for imports in colonial and metropolitan markets went to monopolistic middlemen instead of to producers in the exporting countries, who, under perfect competition, could have been expected to increase their output. Factors of production were diverted from their most fruitful use and were underemployed during the transition. In reality the cost of occupying and exploiting backward areas was defrayed by a sort of tax, paid not to the government presumably for the benefit of the body politic, but to a favored group of courtiers and monopolistic traders.[51] The tax was not rational in its amount or incidence; and the poor in the colonies, upon whom a large share of the burden fell, were taxed without representation or even consultation. The monopolistic toll bore no relation to the cost of the "service," but was based on what the traffic would bear.[52]

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[46] Samuel E. Morison, *op. cit.*, Vol. I, pp. 43-44.

[47] James Mill, one of the greatest authorities on colonial questions in his, or any other, day, said in his famous essay on "Colonies": "That English law, which establishes the monopoly of the colonies, at least of the transatlantic ones, professes to have in view, not trade so much as defense." The reasoning was that defense depends on the navy, the navy on sailors, and sailors on colonial trade and its monopoly; "therefore, colonies ought to be cultivated, and their trade monopolized" (Supplement to the Fourth, Fifth, and Sixth Editions of the *Encyclopaedia Britannica* [Edinburgh, 1865], Vol. III, p. 270). Mill also asserted that "in the idea of deriving a peculiar advantage from the trade of the colonies is necessarily included the idea of monopoly" (*ibid.*, Vol. III, p. 265).

[48] "The great joint stock companies in the mercantilist period became everywhere something more than mere bearers of trade; they were concerned in fact with purely political expansion. They more than any other institution were responsible for the extension of European hegemony over other continents." Eli F. Heckshcr, *op. cit.*, Vol. I, p. 450.

[49] *Traité d'Économie Politique* (Paris, 1803), Vol. I, p. 206.

[50] *Op. cit.*, Vol. II, p. 245.

Without monopoly, there probably would have been no European empire in the East before 1800. Hence, in the final analysis, one's appraisal of the role of monopoly in the expansion to the East depends upon his view as to how well the white man bore his burden. To economic liberals it is gratifying that the American colonies of England and France, where industry and trade enjoyed the greatest freedom, were the ones that achieved the greatest material progress.

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[51] Popular resentment of the great fortune and questionable ethics of Sir Josiah Child, a prominent mercantilist writer and *the* leading figure in the East India trade, was one of the most powerful weapons against the East India Company when the New Company challenged its privileges. T. B. Macaulay, *History of England* (Leipzig, 1855 ed.), Vol. VI, pp. 247 ff.

[52] Cf. W. R. Scott, *The Constitution and Finance of English, Scottish and Irish Joint-Stock Companies to 1720,* Vol. I (Cambridge, 1912), pp. 452 ff.

THE ROLE OF MONOPOLY IN COLONIAL TRADE AND IN THE EXPANSION OF EUROPE SUBSEQUENT TO 1800

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Discussions of the importance of monopoly and of all forms of abuse of economic power require careful discrimination in the use of the group of concepts loosely associated in general speech under the generic term monopoly. It is clearly desirable to distinguish oligopoly, monopolistic competition, and monopsony from actual monopoly. It is certainly important to distinguish economic activities from political and administrative rights and obligations. But it must be admitted that a distinctive feature of economic developments in overseas trade lies in the close association of politics and economics. In any small community the political significance of concentrations of economic power is relatively greater than would be the case in a large state with fully diversified economic activities. A great economic enterprise exerts much more influence on political structure and policy when the area possesses notable undeveloped resources and is inhabited by peoples of a profoundly different culture.

Great concentrations of economic power may exert a commanding influence in the entire social life of the region even though there is really no explicit achievement of monopoly. The presence or absence of monopoly is not in itself of much significance. Furthermore, the fact of this interweaving of economic and political development does not in itself afford evidence of an abuse of economic power. We cannot judge events in pioneer areas by standards that might be appropriate in a highly developed state with maturely developed political and social organization and sufficient financial strength to maintain a just balance among various interests and groups.

Political theory assumes a degree of separation between business and government that cannot be made effective at certain stages in the extension of political organization to undeveloped areas. Most political theory also presumes essential identity in cultural development. But in pioneer areas, great differences in culture exist, so that we are justified in using caution in the application of many "established" principles of political theory. These ideals and concepts are not valid for positively plural societies without modification, and nearly all the colonial areas present the problems of plural societies in extreme forms. Much political theory is concerned with this "isolated" indvidual society. Concepts of sovereignty have set limits to the relations among the societies and states that obstruct the economic contacts they have with each other. The legal and political devices that have been the effective basis of interregional trade stand somewhat outside the limits of formal political theory. In antiquity, as in medieval and modern Europe, the "foreign" trader was most commonly treated as a person outside the jurisdiction of the state. Merchant colonies became special extraterritorial jurisdictions that were not legally a part of the community. Gradually, in Europe, foreigners were granted all the civil rights of ordinary citizens. They were completely assimilated. International law recognized a world composed of states and societies under obligation to recognize each other's rights, but the predominant theories of the state presumed that each society or state ought to be homogeneous and independent. The actualities of permanent and substantial contacts among societies of profoundly different culture have not been adequately recognized by prevailing political theories, and the phenomena of truly plural societies have never been treated as anything but an awkward and undesirable exception to all proper rules. Emphasis on the autonomous sovereign state was intensified by the development of the national states, and finally reached a climax in the principle of self-determination which endowed with moral sanction a thoroughly pernicious and self-destructive concept of atomistic individualism.

No significant or objective study of imperial relations is possible unless these question-begging theories and judgments are excluded or at least temporarily "tied off." The actual phenomena to be examined involve massive and permanent contacts and associations among cultures exhibiting every possible gradation of differentiation. Effective political and economic organization involves many qualifications of local autonomy and independence, both for dependent areas and for primary powers. The study of economic imperialism will be most fruitful if we divest ourselves completely of the attitudes that lie beneath the antimonopoly and anti-imperialist philosophies. The record is something more than a painful revelation of private greed and organized political aggression. Despite all the deep shadows in the picture, there are also highlights. We can find in the history of economic imperialism a prefiguration of the world to be achieved under the aegis of a genuine and effective security system, in which none possess the autonomy and sovereignty of the national state system. The colonial empires of the modern world, and most particularly the imperial administrations of the nineteenth century, are phases in the development of a comprehensive security system, embracing many diverse cultures in effective economic contact and association.

The problems of overseas dependencies are problems of the world economy. They cannot be effectively studied in terms of political and economic theories that are preoccupied with restricted national areas and restrictive national aims.

Monopoly and monopolistic tendencies emerge in three highly distinct forms: the chartered trading companies with explicit grants of territorial authority; regional monopolies and oligarchies of the usual type; international cartels or other control devices designed to secure orderly investment and production throughout the world market for specific commodities.

The chartered companies of the late nineteenth century in Africa were a revival of old forms, but in new circumstances which led to a more explicit emphasis upon the territorial authority of the companies than was characteristic of the great companies of the seventeenth century. Political authority involved powers and contacts with three groups: the European traders in the area; the native population; native and European jurisdictions on the borders of the area granted to the company. These charters did not follow any sharply formulated pattern, so that each instrument is highly individualized. The charters issued by the different European governments vary even more widely than the British charters. Generalizations must therefore be confined to a few broad features. We may consider briefly two British charters and some of the Congo charters.

The charter to the Royal Niger Company was granted July 10, 1886, at that time under the name, The National African Company, Limited. "The company was granted full jurisdiction over all British and foreigners in the country and authorized to make treaties with the chieftains, protect natives, abolish the slave trade, and promote British interests."[1] It was forbidden "to set up or grant any monopoly of trade; and subject only to customs duties—and charges as hereby authorized . . . trade with the company's territories shall be free and there shall be no differential treatment of the subjects of any power as to settlement or access to markets. . . . The customs duties and charges hereby authorized shall be levied and applied solely for the purpose of defraying the necessary expenses of government."[2]

One of the distinctive features of the charter was the policy towards native tribes.

> The company . . . shall not in any way interfere with the religion of any class or tribe . . . except so far as may be necessary in the interests of humanity. . . .
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> In the administration of justice . . . careful regard shall always be had to the customs and laws of the class, or tribe, or nation to which the parties respectively belong, especially with respect to the holding, possession, transfer and disposition of lands and goods, and testate or intestate succession thereto, and marriage, divorce and legitimacy and other rights of property and personal rights.[3]

The charter remained in force until June 15, 1899, when it was revoked because the military establishment required exceeded the resources of the company. As a device for the extension of British rule in a critical area, the company achieved distinguished success. As early as 1888, the company negotiated 275 treaties with local rulers by which the company secured control of about 500,000 square miles of territory. The boundaries ultimately determined by the Franco-British treaty of 1898 conceded part of this area to the French. The boundary with the Cameroons was likewise defined in more restricted terms by subsequent treaty negotiation between England and Germany.[4] The boundaries of Nigeria as ultimately established embraced 335,700 square miles, with a native population estimated as 18,500,000 about 1925.

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[1] Norman Dwight Harris, *Europe and Africa* (Houghton Mifflin, 1927), p. 155.
[2] A. C. Burns, *History of Nigeria* (London: George Allen and Unwin, 1929), p. 164.
[3] *Ibid., loc. cit.*

Judgment of the economic and social administration of the company is not so simple. Despite the prohibition of monopoly, an effective and comprehensive control of trade was achieved without positive illegality. Unwise adherence to a rigid technical interpretation of the power of the company created frictions with the native tribes in the Niger delta. In January, 1895, a force of about fifteen hundred natives made a raid on the main station of the company at Akassa. Twenty-four native servants of the company were killed, but the Europeans who failed to escape at the beginning of the raid defended themselves successfully. Stores were looted and many buildings were burned. The usual punitive expedition followed. The incident is not in itself very important, but it is indicative of the errors of policy that can occur under an essentially sound administration. The company undoubtedly interfered with the continuance and development of native trade, but on the whole no colonial administration did less to impair the vitality of the native economy.

The charter of the British South Africa Company (October 29, 1889) presents a different array of problems. The general character of the instrument is similar; there were clauses covering the protection of native rights, freedom of religion, freedom of trade, guarantees for concessions previously granted. The Secretary of State of Great Britain exercised certain supervisory powers. The company was authorized "to make treaties, promulgate laws, preserve the peace, maintain a police force, and acquire new concessions: it could make roads, railways, harbours, or undertake other public works, own or charter ships, engage in mining or any other industry, establish banks, make land grants and carry on any lawful commerce, trade, pursuit, or business."[5] These powers were to be exercised over all of South Africa northerly from Cape Colony, the Orange Free State, and the Transvaal, and west of the Portuguese possessions in East Africa. It included the new protectorate of Bechunaland, and left the northern boundary with the Congo Free State to be determined. Rhodes had designs on the Katanga region, but the Compagnie du Katanga succeeded in establishing prior claims by securing important concessions from the natives.

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[4] Harris, *op. cit.*, pp. 156-157.

[5] Basil Williams, *Cecil Rhodes* (London: Constable & Co., 1921), pp. 137-138.

In strict legal theory, the Europeans had only concessions for mining and other economic activities. The rights of the native states were not affected. In practice, the Europeans exercised general political authority as soon as the military resistance of native tribes was broken. But for many years the greater native tribes maintained almost complete autonomy. The foundations for effective pacification in Southern Rhodesia were laid only in the late summer of 1896, when Rhodes was able to negotiate a permanent settlement with the Matabele, at a crisis in which a difficult and uncertain war seemed inescapable. The arrangements guaranteed the effective autonomy of the native tribes under chiefs whose authority was supported by the company. The Mashona rose shortly afterwards, and though not as dangerous because less coherently organized, they were troublesome because each individual tribe had to be defeated separately.[6] Dual government in a plural society was a necessary result of such a series of events.

A special feature of the South Africa Company lay in its intimate associations with the corporations controlling the diamond and gold interests in Kimberly and the Transvaal. Important concessions had been obtained by the United Concessions Company, a subsidiary of the diamond companies dominated by Rhodes and Barnato. The De Beers Company, controlled by Rhodes, subscribed for 200,000 shares. The great gold mining corporations in the Rand held shares and Rhodes himself held shares. A large percentage of the original 1,000,000 shares was thus dominated directly by Rhodes enterprises that were mature and prosperous. The South Africa Company was thus provided with the financial support of an unusual array of enterprises whose prosperity was not directly involved in the new project. The gold fields of Rhodesia itself were a great source of financial strength in the general investment market. The significance of these relatively quick resources is striking when the history of Rhodesia is compared with the Congo.

The Jameson Raid is, of course, the unforgivable episode in the history of the company. It was unjustifiable in its conception and peculiarly offensive in the details of its proposed execution. It shows the danger of giving any individuals or group large powers that are not subject to constant criticism and effective external control. The South Africa Company was too largely a device for giving effect to the per-

[6] Williams, *op. cit.*, pp. 285-291.

sonal policies of Rhodes. Similar personal domination of great companies appears in the case of the Royal Niger Company and in the Independent State of the Congo. Sir George Goldie displayed much restraint in the use of the extensive powers at his command. Leopold II of Belgium succumbed to the temptations of authority and created a scandal that stirred Europe even in a period of unusual complacency.

It is not possible in brief compass to describe the complex relations between the Independent State of the Congo and the concessionary companies which served as subsidiaries and as a screen for the evasion of the clauses of the Berlin Act. There are grounds for believing that there was no serious intent on the part of Leopold II to fulfill the obligations imposed by the Berlin Act in respect of freedom of access and freedom from monopoly concessions. Whatever pretense was at first maintained was completely abandoned in 1891 when the State assumed direct control of all "vacant" land not directly in the effective use of native tribes. The State assumed commercial activities and its authority was freely used to promote commercial ends. The collection of rubber and ivory was developed under a system of taxation involving payment in forest produce, and these requirements were enforced by armed sentinels. There is no colonial area in which the natives were exploited so ruthlessly.

These excesses are not a consequence of inherent defects in the government of a pioneer area by a chartered company. Ordinarily, the home government would exercise a restraining influence, but the international elements in the Berlin Act made this residual political control seem remote and ineffective. The lack of any established commercial enterprise on the Congo completed the setting for the tragic abuse of political and economic power that continued until international pressure forced Leopold II to cede his authority to Belgium without the burdensome financial conditions that he had intended to impose. For a limited period, abuses of power can be carried to greater extremes in a pioneer region than would be possible in any large or maturely organized state.

Monopolies and monopolistic combinations designed to control the regional market are of course present in overseas dependencies. The diamond monopoly and the centralized control of the gold mines of the Rand are characteristic illustrations. For many years the nitrate beds of Chile were closely controlled. With rare exceptions, however, these regional concentrations of control were replaced after an interval with some control devices that were explicitly international or interregional. Dependent economies are too closely tied into the world market to make local control devices effective.

Even during the purely maritime phase of expansion, areas of settlement and of commercial agriculture were opened up at rates which exceeded the capacity of the European markets to absorb colonial products at remunerative price levels. There are no fully adequate statistical materials, but incidental evidence and episodes are sufficient to establish the general characteristics of the period. Sugar, tobacco, and spices all reveal patterns of overexpansion so pronounced that crude devices for market control were adopted in most of the producing areas. Any serious consideration of the underlying conditions of development would indicate the danger of overexpansion, but contemporary thought was obsessed with fears of scarcities and of high prices. Restrictions on colonial trade reflect these fears. Autarkistic policies were themselves a factor in promoting developments which increased the rates of expanding production in the world as a whole.

The phenomena of rapid expansion which have latterly become so patent throughout the world are not new. They have become more serious in the course of the nineteenth century because reductions in ocean freight rates and the development of rail transport have greatly increased the extent of potential areas of supply. Furthermore, the more important agricultural products are not primarily limited by the amount of first-class land available. Labor rather than land is the immediate factor in limiting these economic activities. For this reason the influence of cultural differences upon the recruitment and compensation of labor became preponderant factors in the development of the commercial agriculture that dominates the dependent economies. Labor is supplied under conditions which cannot be analyzed in terms of simple competition in a free market system.

These difficulties are not confined to the dependent economies. The great agricultural depression (1878-1900) throughout the cereal areas of the north temperate countries is merely another illustration of the lack of adjustment between rates of expanding production and the development of effective market demand. An unpublished dissertation by Dr. Wilfred Malenbaum shows that the expansion of wheat acreage has continued at a rate in excess of the development of demand.

The history of world trade in primary colonial products, thus, discloses a persisting lack of equilibrium that is not consistent with the oversimplified analysis of competition that has dominated nineteenth century thought. The growing conviction that control devices must be set up reflects the development of a more realistic appreciation of the nature of the problems and realization of the failure of unregulated and unorganized investment, production, and marketing. Conditions in these markets do not foreshadow the end of all competitive market process, but they do show that our understanding of the mechanics of competitive distribution and price making has been naïve and incomplete. The existence of free markets does not exempt individuals and groups from the necessity of making policy judgments. A well-organized market is a vehicle for the expression and development of sound policies for both producers and consumers. Cartels and other control devices should not be feared as attempts to monopolize basic markets for primary products. When proper control devices have been developed we should have a better and more significant price structure than we have had in the past.

It is important to accept the general idea that control devices are desirable, but it is very difficult to develop proper techniques for control. Some of the difficulties are due to the hostility and skepticism with which such schemes have been treated in the past. Part of the difficulty is technical. Control devices must be minutely adjusted to the particular problems in each market. There are many interests to be considered and all too frequently control devices have been narrowly conceived to meet the requirements of small groups or small sectors of a large and complex market. Our effective experience is limited; the problems are difficult and complex. It is important not to be easily discouraged.

There is perhaps time for one concrete illustration of these market problems: rubber production and its control. In 1900, plantation rubber amounted to 2.3 per cent of the world exports. The spectacular increases in price that developed in response to the demands of the automobile industry led to a rapid development of plantations in the period 1903 to 1910, but production required an interval of six years from planting. Plantation rubber amounted to 11.8 per cent of world exports in 1910 and rose to 45.0 per cent in 1913. Prices had fallen, but stocks were very small—in 1913, 3.3 per cent of world export as compared with 9.1 per cent in 1904. At the close of the first World War conditions had changed profoundly. World exports had increased threefold, to 400,000 tons, and principal world stocks had risen to 28.5 per cent. In 1921, world stocks were 72.5 per cent of world exports. The inference seems clear that production had completely outrun the immediate effective demand. Rubber had taken the place of much coffee planting in the Indies and on the Malay Peninsula. Presently, the natives in the Dutch East Indies and in the Malay archipelago began to plant rubber trees in their gardens. Rubber became an important cash crop for them and could be produced at cost levels that exerted a great pressure on the market even after allowance was made for differences in quality and for limitations to the amount that was currently produced.

The succession of experiments in production control was a natural result of the crisis in the producing regions. The restricted scheme established by the Rubber Grower's Association in 1920 was of little avail, and many producers withdrew at the rise in prices in 1921. Under British initiative, the Stevenson plan was worked out and adopted in Ceylon and the Malay Peninsula (November 1, 1922). The Dutch producers remained outside, in control of 25-27 per cent of world production. The techniques embodied in the scheme were ill-considered in detail, and the limitation of restriction to the British producing areas was a serious handicap to really effective action. The plan was abandoned in 1928.

Continued distress in the trade created critical conditions. Stocks increased to 60.0, 77.0, and 89.0 per cent of world exports in the years 1931-32. The average annual price at New York fell to 3.43 cents per pound in 1932. The lowest average price during the twenties was 16.35 cents (1921), the highest 72.46 cents. In 1934, estate costs were 5-6 cents per pound. Extended negotiations resulted in the formulation of the International Rubber Regulation Scheme (May 7, 1934). The signatories of the agreement were the United Kingdom, India, the Netherlands, France, and Siam. This scheme remained in operation until April 30, 1944.

Appraisal of the merits of the scheme is difficult. The movement of stocks indicates a better balance between production and demand. In 1939 and 1940 stocks fell to 44.5 and 41.0 per cent, rising in 1941 to 57.0 per cent. Some authorities assume that 50.0 per cent is the proper normal stock, though that seems to be a rather high figure in terms of the records for the decade of the twenties. Many feel that prices were maintained at an excessively high level, because the manufacturers are indifferent to the prices paid for crude rubber. But even if allowances are made for all the deficiencies of the scheme, one may wonder if conditions are sufficiently stable to make it possible to maintain completely unregulated trade. There is much that is attractive in schemes designed to restrict investment in new plantings, and some believe that provisions for restriction are essential. In other fields experiments of that type have not worked satisfactorily. The problems are, however, too serious to be ignored. The technical difficulties are very great. The control devices that may be used need to be studied with open-minded sympathy, but it is important to recognize that successful control involves progressive improvement of marketing techniques rather than the substitution of arbitrary authorities whether inside or outside the trade.

Every commodity presents special problems. Some perhaps more difficult than the problems of the rubber trade, some less difficult. But whether greater or smaller, the problems of orderly production and marketing cannot be ignored.

DISCUSSION

JOHN G. B. HUTCHINS: Professor Usher has given us a suggestive paper. Clearly the subject is vast, and hence convincing analysis is likely to be found only in the treatment of specific instances. The basic studies do not exist to support many of the prevalent loose generalizations regarding the extent and effects of monopoly in colonial trade. Such studies would have to treat of the effects of various types of restrictive arrangements on the pattern of industrial localization the world around, of their influence on the terms of trade of the imperial powers with colonial peoples and with other nations, and of the impact on saving, investment, capital formation, and resource utilization in the primary states and in the colonies. The basic issue appears to be whether or not monopolistic and restrictive arrangements common in the extensive colonies of the west European powers resulted in a higher level of national income in the home countries concerned than would otherwise have existed. A generalization is possible only by reasoning in the light of all of the significant facts.

Professor Usher has quite justifiably pointed out that much political theory is unrealistic in its treatment of colonial problems in which plural economic structures are present. I would like to add that the neoclassical theory of international and interregional trade likewise is inadequate. Indeed, I incline to the opinion that there is more to be gained by a study of long-run equilibrium tendencies as applied to world-wide localization of economic activities. In particular, attention should be directed toward those institutional frictions which make this kind of adjustment so slow. Colonialism is certainly involved in these frictions.

A very cursory examination of nineteenth century economic history shows that there was the greatest disparity between the localization of resources and the regional rates of growth in almost all important aspects. The so-called "industrial revolution," which had achieved prominence in the British Isles in the last half of the eighteenth century, was rapidly spreading in western Europe and the eastern United States by the middle of the nineteenth century, and was beginning to take hold in Japan, India, and eastern Europe by the end of that period. The driving forces were clearly twofold; namely, the emergence of a new technology, especially in the field of heavy industry, and the development of new and more rational forms of economic structure to permit of the effective employment of the new production techniques. We cannot here go into the fascinating question of why rapid and constructive innovation occurs in particular places and at particular times. Suffice it to note that the hundred or so years of change had greatly widened the differences in political and economic structure between the advanced areas and those which had not themselves participated in the creation of the new economic system. The older systems found three characteristics of advanced economic society particularly difficult to assimilate; namely, heavy investment in fixed plant and the accompanying fixed costs, large-scale corporate organization with its concentrated financial power and multitude of shareholding interests, and finally, rational specialized management accustomed to rational law and government. At the same time the attraction of resources, both physical and human, was irresistibly driving the world economy toward a new localization pattern requiring substantial production by modern methods in backward regions. The resulting institutional difficulties distinguish the problem of late nineteenth century colonialism from that of earlier times.

Professor Usher is therefore on sound ground when he notes that "effective political and economic organization involves many qualifications of autonomy and independence both for dependent areas and for primary powers." From the point of view of a primary power, an industrial development in a backward area meant a substantial commitment of national resources under conditions in which withdrawal without substantial loss was impossible. Such was certainly true of the great oil refinery, rubber plantation, and mining investments. Hence a multitude of interests felt concerned with obtaining special protection. In an effort to safeguard such investments in areas of nonrational law and administration, it is not surprising that imperialism and exclusive arrangements appeared and were furthered by both private and public officials.

One form was the exclusive concession, common in mining and oil production. This device was particularly suited to areas in which an autocratic and personal local government held sway, and involved in effect making the ruler a sort of partner. These arrangements were doubtless restrictive, in the sense that free competition might have produced more production at a lower price, but given the institutional hazards involved in unprotected fixed investment it seems likely that they permitted useful investment to take place where otherwise there would have been none.

I think that the thesis could be defended that the colonial and concession systems, where employed with moderation and with due regard for the rights of the local populations, greatly assisted in the exploitation of resources which local populations could not have touched for decades and which would not have been greatly exploited by western Europeans on any other basis. They may be regarded in a sense as instruments which made plural economies workable, and they are also to be regarded as temporary in nature pending institutional development in the colonial area. Thus undoubtedly there was some additional wealth created by colonialism, and it seems probable that much of this addition went to enhance the living standards of Europe.

In many cases, however, colonialism and concessionism were, as Professor Usher has remarked, devices for the oppression of native populations and for the extortion of monopoly gains from the rest of the world. Tight commodity production and price controls, often maintained with government assistance, and frequently coupled with coolie labor contracts, produced abnormally large advantages for the European owners, whether state, sovereign, or private. This kind of a setup thus contributed to the wealth of western Europe, but in a distinctly predatory manner. There is little doubt that the East Indies rubber industry met this specification at times. The territorial companies in most instances also appear to have had privilege and protection far in excess of what might have been necessary to induce investment.

As a group the great colonial powers of Europe could obtain gain from colonial and concession activities in only three ways; namely, by making useful investments and thus adding to production, by exploiting local population groups in the sense of preventing them from receiving fair market values for their services and property, and by charging noncolonial peoples in Europe and elsewhere monopoly prices. To the extent that they charged one another monopoly prices the gains and losses must have been somewhat balanced. It is the first type of activity to which the proponents of colonialism point with pride, whereas the latter two activities have been much criticised. It would therefore appear that from a broad liberal standpoint, judgment regarding the results of any particular episode must depend on the balance between the constructive and predatory forces.

It is also worth noting that colonial arrangements emphasizing the first method of gain, namely, investment, have been and still are a useful method of managing areas of plural economy. Furthermore, as Mr. Usher suggests, some control of markets by colonial governments on occasions when an inelastic demand curve has moved far to the left may be desirable in the interest of protection of the position of the colonial economy. It has, however, been difficult to devise political arrangements which avoid the monopolistic and exploitative practices which have resulted in the widespread condemnation of colonialism. Here lies the political problem of the modern colonial powers.

To return once more to the great relocalization of economic activity in progress as the result of the spread of the industrial revolution to ever further areas, it is worth noting that nineteenth century colonial monopolies and concessions served to channel trade to a marked extent toward the west European industrial area, and thus helped to preserve the position of producers there long after the original reasons for industrial leadership had been neutralized or had disappeared. Special monopoly gains also facilitated European capital investment. It will be interesting to observe to what extent the current weakening of colonialism results in the rise of new production centers in Asia and Africa, and in new flows of trade. There can be little doubt, however, that many sources of monopoly gains are being eliminated. Large-scale monopolistic control of these resources and markets by a nonwestern European power would certainly have long-run results highly adverse to the west European economies.

DUDLEY DILLARD: As one would expect from a man who has made brilliant contributions to so many fields of economic history, Professor Usher has delivered a provocative paper. Of the many points that might be raised there are two I would like to discuss, a minor and a major point.

The minor point relates to the choice of natural rubber to illustrate the problems and the necessity of international cartels as a device designed to secure orderly investment and production. The long period of production—some six or seven years—between the planting and the harvesting of natural rubber, complicates the adjustment of output to demand through the medium of free market price. By the time the maximum elasticity of supply has been attained the increase in output may be so great as to depress the price far below profitable levels. Hence the probability of market maladjustment is greater than for almost any other commodity, and the choice of rubber as "typical" tends to prejudice the case in favor of controlled investment and production.

The major point has to do with the apparent absence of any general, unifying theme in Professor Usher's paper. He discusses the role of monopoly in the new economic imperialism of the late nineteenth and early twentieth centuries. After a few introductory remarks which appropriately point to the barrenness of traditional economic and political theory in relation to the subject under investigation, he discusses several different forms of monopoly and monopolistic tendencies employed by European nations to control the territories and markets opened as a result of the new imperialism. Beyond indicating the general outline of his paper I find it difficult to state his general thesis. There may be a simple and general theme in Professor Usher's paper, but I have been unable to discern it.

The difficulty arises, I think, from the failure to provide a framework of interpretation to which the particular points under discussion may be referred for evaluation in a systematic fashion. In other words, there is no theory of economic development. This raises the fundamental question of the relation of economic history to economic theory, an issue which seems appropriate at a joint meeting of the American Economic Association and the Economic History Association. As economic theory and economic history are traditionally carried on, they have little in common except in name, as was pointed out by Werner Sombart in his well-known article on "Economic Theory and Economic History."[1] There is a widely held view that economic history can be carried on without economic theory, but clearly this view is mistaken. Mere selection and emphasis can take place only within a framework of reference. The purpose of theory is to suggest hypotheses and to provide a framework within which they can be tested. When found valid these hypotheses contribute to the progress of science. In the absence of the terms of reference which only a self-consistent theoretical structure can provide, Professor Usher strikes out into an intellectual as well as a geographical jungle. There is, of course, no time for me to outline a theory of economic development, and in the absence of this and of its application to the problem under discussion, what I have to say must remain merely an appeal for more and better economics in economic history. However, what I have in mind can be illustrated by referring to several points in Professor Usher's paper.

In the first paragraph Professor Usher pays lip service to the distinctions between monopoly, oligopoly, monopolistic competition, monopsony, etc., but pushes these categories aside when he comes to the main body of his paper. I see in this reference to the hierarchy of categories an unfortunate interpretation of the basic significance of the theory of monopolistic competition. The particular form of monopolistic tendency is less important than a working recognition that monopoly is profit-preserving and competition is profit-destroying. Since the purpose of business enterprise is to make profit, it tends toward monopoly in the normal pursuit of its objective. Thus we come to a clear break with Adam Smith's idea that the "natural" price is the freely competitive price. The perfect business enterprise is the complete monopoly. Incidentally Professor Usher's colleague, Professor Chamberlin, who tells us that the true point of departure of price theory is monopoly rather than competition, would have given more consistent recognition to his fundamental insight if he had referred to his contribution as the theory of imperfect monopoly rather than the theory of monopolistic competition. If there is more monopoly today than there was a hundred years ago, it is because the establishment of monopoly is less difficult. In the colonial expansion of Europe into Africa and elsewhere the chartered companies organized for the purpose of profit making were also granted political jurisdiction over their territories. Hence it is not surprising that even the model Royal Niger Company, whose charter prohibited any monopoly of trade, did nevertheless establish an effective and comprehensive *de facto* monopoly in its territory. For it to have done otherwise would have been inconsistent with its most fundamental purpose. The charter provision prohibiting monopoly was clearly an anomaly. To ask a business enterprise to refrain from striving for monopoly is somewhat like asking an omnipotent diety to demonstrate his omnipotence by committing suicide.

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[1] *Economic History Review,* Vol. II (1929), No. 1, pp. 1-19.

Professor Usher criticizes traditional political theory for making the assumption of cultural homogeneity. I agree, but would add that a similar type of criticism should be extended to economic theory. However, the difficulty in the case of economic theory—I do not pretend to speak for political theory—cannot be remedied just by adding another assumption or another variable. The difficulty can be overcome only by a reconstruction of traditional economic science to make it consistent with the explicit recognition that economics is a cultural science, as my colleague Allan Gruchy has stressed in his recent volume. The task of economic history is to investigate the nature and direction of change in the economic aspect of a total culture. An economics which takes this approach will have no trouble adapting itself to the special problem that arises in connection with the spread of Europeanism into Africa in the late nineteenth century. The question of principle involved is what happens when a technologically superior culture comes in contact with a technologically inferior culture. The answer, in general terms, is that the inferior culture is subordinated to the superior culture. The adaptation of European culture, spearheaded by chartered companies engaged in the business of profit making, to the situation in Africa is clear in outline. Africa was a land of fabulous wealth but its resources were of no value without labor to work them. Since the free wage-labor characteristic of capitalism was not available in sufficient quantity, recourse was had to forced labor. There were numerous variations in the general pattern of exploiting human and natural resources. If natives with their own fields and herds would not work for wages, they could be forced to work if they had insufficient land and herds to gain a living. Thus in the Congo the land was expropriated by declaring all "vacant" land the private property of Leopold's enterprise. Contract labor, which was seldom understood by the natives, was another type of forced labor. Another device was to use the political power of the chartered companies to levy taxes. If levied in money, the natives could pay only if they worked for money-wages for the European companies. In other cases taxes were assessed in terms of ivory and rubber, which natives gathered and turned over to their profit-making "government." Customs duties were also the basis of profit making. The Royal Niger Company seems to have been the exception, but an exception that proves the rule. We find the chairman of the company asserting at the annual meeting in 1897: "Ours is the only chartered company of our time which is forbidden to earn profits on its capital out of customs duties or other taxation; the entire revenues so raised having to be expended for public purposes."[2] The abuses of political power for economic ends may not have been an inevitable consequence of inherent defects in governing pioneer areas by chartered companies, but their occurrence is no accident to be explained in terms of poor management and errors of administrative judgment. In general the evidence inclines me to agree with Adam Smith, who said: "The government of an exclusive company of merchants is, perhaps, the worst of all governments for any country whatever."[3]

Professor Usher recognizes the "deep shadows" in the picture, but finds the real significance of the economic imperialism of the late nineteenth century in the fact that it is a prefiguration of world economy and world government. This is one way of viewing it, a way which again places the emphasis on forms and techniques of administration. Economic imperialism may also be viewed as a phase of world anarchy and as the prelude to the first World War. It is the harbinger of the all-embracing crisis of our time which, if we are lucky, will be followed by a new social and economic pattern better suited to world government and world economy. The contemporary revolution in domestic Europe will also revolutionize the relations with overseas territories. The contrasting attitudes toward empire of Prime Minister Atlee and former Prime Minister Churchill are significant portents of the day. Rather than say that economic imperialism is an adumbration of world economy and world government, I would prefer to view it as the outcome of forces tending to create a world economy and to require a world government as these forces operated through nineteenth century European capitalism as it entered the age of mass production.

In conclusion, I feel there is an organic unity in the objective conditions under discussion which should but does not find expression in Professor Usher's presentation. Since this most certainly cannot be accounted for in terms of any lack of knowledge of the facts, it must be attributed to his approach to the subject. I have suggested this may result from the lack of any general theory of economic development, and more particularly the lack of a theory of capitalistic development. The preoccupation of European capitalists with privileged spheres of trade and investment was merely an extension of the principles of business enterprise to the overseas areas occupied by a technologically inferior culture.

LAWRENCE A. HARPER: Professor Hamilton's paper demonstrates a wide range of knowledge and performs a most useful service in bringing together much data concerning the role of monopoly in the overseas expansion and colonial trade of Europe before 1800. Throughout, however, he stresses the profits which colonial monopolies strove to obtain and the tone of his paper at times tends to suggest that this desire for profits was rather reprehensible.

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[2] N. D. Harris, *Europe and Africa* (1927), p. 155.

[3] *The Wealth of Nations* (Modern Library edition, 1937), p. 537.

My qualifications for discussing the subject unfortunately have never included enjoyment of a monopoly of my own. They have extended to the discomforts experienced during three nights spent aboard a transcontinental train which probably are most properly ascribed to postwar conditions but are more often attributed to the virtual monopoly which railroads enjoy. Nonetheless, I wish to appear as the devil's advocate. It seems to me that hope for monopolistic profit provided an essential ingredient in the overseas expansion and colonial trade of Europe before 1800.

Some unusual inducement was apparently necessary to stimulate colonization. It is important to remember that the lead in colonization was not taken by the well-established merchants in the Italian and the Hanse towns. The Dutch had great success in the East Indies but they played only a minor role in the West. The lead was taken, not by practical businessmen, but by outsiders—visionaries who sought a pot of gold at the foot of the rainbow. Prince Henry of Portugal gambled his time and his wealth. Columbus and others risked their lives. Was it not natural that they should ask more than a mere laborer's hire, more than the normal profits of trade? They wanted an incentive to compensate them for the risks they ran. It was offered them in the form of monopolistic grants.

Most overseas adventures were started privately. If colonization and overseas trade had been dependent upon direct governmental activity it probably would have been long deferred. Few European governments then had the financial resources with which to embark upon such enterprises. Even fewer ministers could be found who would be willing to advocate risky ventures. A modern politician who promotes an unsuccessful project is apt to lose the next election. A mercantilist minister was more likely to lose his head.

It is true that after private enterprise, stimulated by personal monopolies, had established colonies, nations like Spain and England sought to monopolize their colonies' trade. They thereby sought either to retain the bullion of America for their own use or to procure some of it by attaining a favorable balance of trade, through the exploitation of colonial tobacco and dyestuffs. Modern economic theory can point to many flaws in mercantilist logic but cannot explain away the correlation which exists between wealth and power. Witness the importance of dollar exchange today! In view of the frequency of wars before 1800, nations can scarcely be blamed for wishing to monopolize as many resources as possible. The policy undoubtedly would not increase world plenty, but the nation which proved to be the most successful monopolizer might well believe that it would increase its power at the expense of that of its neighbors.

Professor Hamilton very properly calls attention to monopolistic exactions as being a form of taxes. The colonists did receive very real benefits. They owed their very establishment to investments made by the mother country.

They received protection thereafter against the Indians and foreign enemies, as well as the benefits derived from trade treaties and other commercial advantages. It is undoubtedly true that private monopolists would seek too much in recompense if circumstances permitted. It may be that in some instances an individual, group, or nation enjoyed an exorbitant return. Yet it would be an interesting inquiry to survey all the colonial investments and to compare all the gains with all the losses. As modern chambers of commerce are fond of reminding us, ours is a profit-*and-loss* system of economy.

In the case of national monopolies Professor Hamilton suggests that at the end of the Seven Years' War the Navigation Acts were no longer necessary that England might then well have repealed them and thereby possibly have avoided the American Revolution. Undoubtedly there was no longer need for some parts of the code, such as those forbidding the use of foreign ships, nor possibly, with the development of English industry, for those restricting the importation of European manufactures. But England's control of the colonial export trade of such commodities as tobacco depended on legal restraints. If the Acts had been repealed in 1763 she would have lost her monopoly of its distribution then just as she did in 1783 after the colonies obtained independence. Even more important, there is little evidence to suggest that the revolutionists considered the Navigation Acts a grievance. They had lived under them for more than a century. The matters arousing resentment were the new measures which proposed to have the colonists pay for benefits received not in the traditional manner through indirect monopolistic profits but in the more open form of taxes.

Professor Usher's paper dealing with the period after 1800 stresses the element of control rather than that of profit. The element of control, however, is one which might equally well have been stressed for the period before 1800.

Mercantilist governments lacked many of the means of regulating conduct possessed by their modern successors. The practice of farming taxes affords a good illustration of the point. Just as control over local industry used to be entrusted to medieval guilds so was the regulation of overseas expansion entrusted to the great joint-stock trading companies. They were charged with the maintenance of the reputation for quality of English products. In Africa a royal company was charged with the task of providing forts for the protection of those who might try to capture too many negroes or for those who needed help in holding natives whom they had enslaved. In the East Indies the company had to conduct many diplomatic negotiations of great delicacy. In America there was need to subdue the savages, apportion the land, and administer the affairs of the early settlements. The fact that after communities were firmly established these tasks might be and were often taken over by settlers themselves does not demonstrate that company control in earlier periods may not have been advantageous. An interesting subject of investigation would be to discover the extent to which there was a correlation between the density of European population in the colonies and the presence or absence of monopolistic controls.

Monopoly was the weapon of a new group breaking into a new field. It is highly significant to remember that those inveterate free traders, the Dutch, employed monopolistic companies when they invaded new areas, in the East and the West Indies.

In short, whether one seeks to understand or to evaluate the rôle which monopoly played in developing overseas trade and colonization before or after 1800 two points stand out: the hope for profits which supplied the stimulus for expansion and the opportunity for regulating overseas enterprises which monopolistic controls provided.

THE PROGRESS OF CONCENTRATION IN INDUSTRY

THE GROWTH OF BIG BUSINESS

By Harrison F. Houghton
Federal Trade Commission

In presenting a thirty-minute paper on this encyclopediac subject of "The Growth of Big Business," it has obviously been necessary not only to be somewhat arbitrary in the selection of topics but also to make rather drastic abridgments in the discussion. Thus, out of numerous possible aspects of this vast subject, I have focused attention particularly on three topics: (1) has competition declined—with special reference to England; (2) has concentration increased in the United States—with particular reference to the issues raised by Berle and Means; and (3) post-World War II trends and the outlook for concentration.

At the outset, I should like to make it clear that I am discussing "Big Business" and the concentration of economic power from the point of view of ownership and control; that is, in terms of such ownership organizations as corporations, concerns, etc., as distinguished from technological units—plants, mines, mills, etc.

Origins of Monopoly and Competition

Problems of monopoly and concentrations of economic power have plagued man throughout the history of trade and commerce. The term "monopoly" is said to have originated with the Greeks of the Ancient World. Aristotle referred to it in his *Politics,* and indeed recommended that "statesmen ought to know these things; for a state is often as much in want of money and of such devices for obtaining it as a household, or even more so."[1]

Monopolies, in the sense of exclusive rights to the trade, were prevalent in Egypt both before and after its occupation as a Roman province. The Roman theory of trade during the period of Augustus and his immediate successors was that of free competition, but by the third century A.D., exclusive rights of sale granted private individuals spread so rapidly that Rome became not only the hub of the universe but one of the greatest monopolists of all time.

Widespread moral repugnance against grants of privilege led Emperor Zeno in A.D. 483 to forbid monopolies of clothing and food, and to prohibit combinations agreeing not to cut prices. During the Middle Ages "forestalling" and "engrossing" were subjected to stringent regulation. In the age of mercantilism, all of the great trading nations granted monopoly privileges to merchant adventurers, and the Crown Prerogative was exercised lavishly for the granting of exclusive rights of manufacture and sale in the domestic market. John Lock—challenger of the "Divine Right of Kings"—in making the first comprehensive statement of the liberal philosophy, was greatly influenced by the attempts of the Long Parliament to abolish the king's right to grant trade monopolies.[2] His followers, the Benthamites and the Manchester School of Economics, heralded the new "era of competition."

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[1] Aristotle, *Politics,* Book 1, Ch. XII, p. 48 (quoted by Harold G. Fox, *Monopolies and Patents* [University of Toronto Press, 1947], p. 19 ff.).

Has Competition Declined?

Although the monopoly-competition problem has thus been an economic and political issue throughout almost the entire span of recorded history, it did not reach its greatest importance until the latter part of the eighteenth century, when "competition" virtually achieved the importance of a religious faith. In recent years the question has been vigorously argued as to whether competition actually has declined since that historical interval of roughly 1750-1850 when laissez faire was supposed to have reached full flower. It is with the issues raised in this debate that the following section is concerned.

Theoretical works on competition and monopoly during the past decade and a half have, of course, been increasingly devoted to "monopolistic"[3] or "imperfect"[4] competition, and pragmatic studies are commonly prefaced with remarks such as the following: ". . . the assumption that free competition is the rule, to which combines and monopolies are but occasional exceptions, has steadily become less and less satisfactory as actual competition has diminished during the past half-century. . . ."[5]

Dr. Arthur R. Burns's well-documented book on *The Decline of Competition* gave extensive treatment to such competition-limiting factors as trade associations, price leadership, sharing of markets, stabilization of individual prices, price discrimination, non-price competition, and the integration of industrial operations, and asserted that "the rise of the 'heavy industries,' changes in methods of selling, and the widening use of corporate forms of business organization are bringing, if they have not already brought, the era of competitive capitalism to a close."[6]

Dr. Burns's work was subjected to three quite dissimilar and even contradictory lines of attack. The major themes of his critics are: (1) competition has in fact declined, but for different reasons than those assumed by Dr. Burns; (2) competition has actually increased, rather than declined, since improved means of communication and transportation have destroyed local monopolies; and (3) competition was never really "free," anyway. At the least, Dr. Burns can derive some pleasure in knowing that it is logically impossible for him to be in error on all three points.

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[2] Bertrand Russell, *A History of Western Philosophy* (Simon and Schuster, 1945), p. 601.

[3] Edward Chamberlin, *The Theory of Monopolistic Competition* (Harvard University Press, 1933).

[4] Joan Robinson, *The Economics of Imperfect Competition* (Macmillan & Co., 1933).

[5] Alfred Plummer, *International Combines in Modern Industry* (Pitman, 1938), p. 1.

[6] Arthur Robert Burns, *The Decline of Competition: A Study of the Evolution of American Industry* (McGraw-Hill, 1936), p. v.

Strictly speaking, Dr. Burns appears to consider such practices as price leadership, sharing the market, stabilization of individual prices, etc., as symptoms rather than causes of the decline of competition. In other words, bigness is a consequence of technology, and with the consequent decline in the number of sellers, such anticompetitive practices are inevitable. This was the ground upon which Professor Frank A. Fetter criticized him so vigorously.[7] According to Professor Fetter:

> Such a conception implies a false picture of the process. The author views "the decline of competition" as a fatalistic evolution (observe the word "evolution" in the alternative title of the book) of the impersonal and objective weaknesses inherent in the nature of competition itself, and operating independently of and beyond the control of human volition. Collective social action has had nothing to do with this decline and is powerless to retard or to reverse it. A strange reincarnation of the laissez faire doctrine! Then with startling inconsistency we are told that society, bureaucratically organized, can successfully administer a regime of universal industrial monopoly. This is not reason; it is the primitive impulse to vanquish one's enemies by superstition before the battle begins, or the more subtle attempt of the socialistic reformer to paralyze the will of his opponents by invoking against them the philosophy of history or its present question-begging equivalent, "economic evolution."[8]

Dr. Fetter's argument emphasized his own unassailable position that there is a vast difference between efficiency, on a plant basis, and size, in terms of plural-unit businesses—a thesis which was well fortified by the voluminous reports published by the Bureau of Corporations, which showed that the early combination movements in this country far outstripped the demands of technology.

Regarding the second line of criticism, the breakdown of local monopolies as a result of better means of transportation, etc., Dr. Rufus S. Tucker states that "competition is vigorous at the present day, and more effective than it used to be in the horse and buggy days. There are more sellers striving to get a share of each consumer's dollar. The consumer has a wider choice of products and suppliers."[9]

However, in the following paragraph, setting up tests of effective competition, Tucker says: "These are: first and *least important,* the number of competitors. . . ." (Italics added.)[10]

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[7] W. H. S. Stevens also criticized Dr. Burns for failing to give due emphasis to mergers as a force in reducing competition but his position on other points was quite different, as see below.

[8] Frank Albert Fetter, "Planning for Totalitarian Monopoly," *Journal of Political Economy,* February, 1937, especially pp. 100-101.

[9] Rufus S. Tucker, "Concentration and Competition," *Journal of Marketing,* April, 1940, p. 358.

[10] *Ibid.* Tucker goes on to other tests as follows: "second, and also not very important,

Thus, according to Tucker, competition has increased because buyers are no longer under the domination of the old-fashioned village store and hence have more sellers to choose among, but, he says, the number of competitors is the least important test of competition. While this inconsistency of argument might be passed over, it is certainly questionable whether the increase in competition resulting from the breakdown of local monopolies bears much weight, relative to the increased importance of a few, large suppliers dominating the national market.

The more important issue, however, is whether competition ever was "free" in the first place, for a negative answer to this query raises grave doubt as to the empirical foundations of classical economic theory, even if we grant that all the assumptions of academic "perfect" competition never existed in the real world. Dr. W. H. S. Stevens cites Adam Smith's observation that "people of the same trade seldom meet together, even for merriment and diversion, but the conversation ends in a conspiracy against the public, or in some contrivance to raise prices"[11] as indicative of, to quote Stevens, "the widespread existence of such [anti- and noncompetitive] activities in England over 150 years ago."[12]

In a similar vein Hobson once stated that "in local industries, especially where goods are sold directly to consumers, prices never have been fixed by 'free competition'; the regulations of Guilds and of Assizes have always been succeeded by conspiracies among local vendors to hold up prices. . . ."[13]

But both Hobson and Stevens appear guilty of "blurring" the historical process. In other words, they seemed to skip from the feudal-guild system to a later period of capitalism, without giving appropriate recognition to the economic and social role of competition during the early period of capitalist development. Moreover, there is a significant hiatus between "anti- and noncompetitive activities" and their lasting achievement. In other words, consolidations so prevalent in the modern

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the size of competitors, whether fairly uniform or diverse; third, the reasonableness of the average rate of profits on investment over a period of years; fourth, the proportion of entries and withdrawals of concerns in the industry; fifth, the variability in the proportion of the market obtained by each concern from year to year; sixth, the variability in rate of profit obtained by each concern from year to year with reference to the average rate in the industry. If first one firm and then another gets the greatest share of business or the highest rate of profit, it is plain that competition is active. But even if one firm holds the leading place for years the other tests may show that competition is active." It is worthy of note that examination of trends in such basic industries as automobiles, steel, copper, and others over an extended period, suggests a considerable amount of rigidity both as respect to the concentration of output in the top few, and the relative positions of the leaders.

[11] Adam Smith, *Wealth of Nations* (Modern Library, 1937), p. 128.

[12] W. H. S. Stevens, "Has Competition Declined?" *Journal of Marketing*, April, 1939, p. 346.

[13] John A. Hobson, *The Evolution of Modern Capitalism* (George Allen & Unwin, Ltd., 1928), p. 169.

world, are a much more enduring anticompetition device than agreements, etc.

At the time when Adam Smith wrote his *Wealth of Nations,* England was becoming the workshop of the world. The great inventors—Hargreaves, Arkwright, Crompton, Cartwright, Watt, and the others—had begun to set the industrial revolution in motion. Prior to their time, manufacturing was usually carried on on a very small scale—in the master's dwelling, where the laborers were members of the master's family.

It was at this interval, just as the factory system, with its large buildings, expensive machines, bands of workers, employers and overseers, was ushering in what Sombart has characterized as "full capitalism,"[14] that Adam Smith published his famous work. He did not deal with the abolition of the former industrial monopolies in England, and spoke only of trading monopolies or monopolistic civic corporations. The old guild monopolies were in process of disintegration and the doctrine of free competition was making great headway, at least in England.[15]

Some of Smith's immediate pupils were so convinced of the unconditional value of the law of competition that they contended that the individual desire for gain would sooner or later break down every monopolist combination, even if it operated to the common advantage of the interests concerned.[16]

John Stuart Mill, observing the experience of municipal gas and water works and railway companies, took a more "modern" view of the dangers of monopoly than did Adam Smith's disciples, when he said that "'where competitors are so few, they always agree not to compete. They may run a race of cheapness to ruin a new candidate, but as soon as he has established his footing they come to terms with him."[17]

Dr. Herman Levy goes on to point out, however:

> It is typical of Mill's scrupulous treatment of the subject that, in view of the few exceptions that he finds to the law of competition, he disowns the doctrines of individualist economy which assumes its ubiquity. . . . Combination had conquered one whole sphere of industrial activity. But it was very different with the large manufacturing trades, which had continued after 1800 to develop on former lines. In this sphere of industry competition ruled, as before, without exception. More especially is this true of the most important finished

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[14] Werner Sombart, "Capitalism," *Encyclopaedia of the Social Sciences,* Vol. III, p. 206. Sombart distinguishes three periods of capitalism: (1) "early"—thirteenth century to middle of eighteenth century; (2) "full"—closing with outbreak of World War I; and (3) "late"—World War I to present.

[15] In the German States, on the other hand, trade regulations restricting free competition continued to a great extent in the eighteenth and nineteenth centuries. A similar situation was true in France. (Cf. Levy, *Monopolies, Cartels and Trusts in British Industry* [Macmillan, 1927], pp. 91 and 94 ff.)

[16] Levy, *op. cit.,* pp. 99-101. (Cf., e.g., J. R. M'Culloch, *Principles of Political Economy* [Edinburgh, 1825], and Buchanan on A. Smith, Vol. 1.)

[17] J. S. Mill, *Principles of Political Economy* (London, 1849, 2nd ed.), Vol. I, pp. 176 and 301; Vol. II, p. 499. (Cited, Levy, *op. cit.,* p. 101.)

goods of the period. In these trades we find in ever-increasing degree the continually growing number of undertakings and the multiplicity of existing factories, which are nowadays also a general sign of the prevalence of competition.[18]

Spokesmen for the Manchester School, such as Cobden and John Bright (both members of Parliament), were unremitting in their espousal of free competition.[19] Moreover, the widespread belief in free competition among businessmen themselves is generally noted by economic historians of this period. For example, Cunningham, in his authoritative history of English industry and commerce, states that the cotton manufacturers of the early part of the nineteenth century could have secured a monopoly of industrial power—"*but the spirit of keen competition had caught hold of the employing classes;* they were of the opinion, and in all probability their judgment on this point was perfectly sound, that it was only by a continued exercise of the activity by which they had found their way into foreign markets that they could hope to retain them."[20] (Italics added.)

Conditions in England prior to World War II (and the advent of labor socialism) were the complete antithesis of competition. Industry was "rationalized." Each industrialist was allotted a specific percentage of the total business in his industry. If he exceeded his quota he was fined, and if he fell below his quota he was recompensed. And each industrialist had to pay a levy, to be used by the industry to purchase and destroy "redundant" capacity. Price cutting, market strategy, and all the other characteristics of free competition had been superseded by "coordinated production and stabilized prices." The whole movement away from competition was led by the British government "by precept, example, inducement, and compulsion."[21]

Dr. Ben Lewis concluded: "Britain is not operating under nor is she moving toward a 'planned economy.' Dramatics aside, England is experiencing nothing more 'revolutionary' than a completely planless, muddling *decline of competition*—decline on a wide front, firmly motivated and actively in process, but opportunistic and piecemeal nonetheless. . . ."[22] (Italics added.)

The Rise of Big Business in America

The general features of the growth of big business in America, which dates roughly from the years immediately following the Civil War, are well known and need only be briefly mentioned here. "Gentlemen's agreements" and "pools" gave way to "trusts," which in turn, were superseded by holding companies and giant corporations. It was the consolidation movement of 1897-1903 that "gave to American industry its characteristic 20th century concentration of control."[23] The first World War brought a seemingly inevitable concentration of activities in the larger concerns, and in the postwar years a new merger movement set in, to reach "fever heat" in the late twenties.

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[18] Levy, *op. cit.*, pp. 101-102.

[19] Cf. Morley, *Life of Cobden*, I, 126. (Quoted by W. Cunningham, *The Growth of English Industry and Commerce in Modern Times* [Cambridge, 1929], p. 840 ff.)

[20] Cunningham, *op. cit.*, pp. 619-620.

[21] Ben W. Lewis, *Price and Production Control in British Industry*, Public Policy Pamphlet No. 25 (University of Chicago Press, 1937), pp. 1, 2.

[22] *Ibid.*, p. 32.

Has Concentration Increased in the United States? Credit may be given Berle and Means and their *Modern Corporation and Private Property* for stirring up the hornet's nest of the monopoly-competition problem during the thirties. They asserted that our economic life is organized around "a 'corporate system'—as there was once a feudal system—which has attracted to itself a combination of attributes and powers, and has attained a degree of prominence entitling it to be dealt with as a major social institution."[24] They focused attention upon the economic power concentrated in a small group of corporate giants, the separation of ownership from control, and the growing dispersion of stock ownership.

On the matter of concentration of economic power, two major observations were made: (1) Regarding the *extent* of concentration, it was found that the 200 largest nonfinancial corporations in 1930 held approximately 49 per cent of all the corporate wealth of the country, 38 per cent of the business wealth (corporate and noncorporate), and about 22 per cent of the total national wealth.[25] (2) In terms of *trend,* these corporate giants were found to be expanding at a considerably higher rate than the rest of the business community. Whereas in 1909 the 200 giants owned approximately one-third of the total assets (less taxable investments) of all nonfinancial corporations, by 1929 they owned 48 per cent and in the early thirties they held nearly 55 per cent.[26]

The validity and significance of these figures were sharply challenged[27] on the grounds: (1) that they lacked specificity—in other words, that by lumping the so-called "natural monopolies," public utilities and railroads, together with competitive industries, both the current extent of concentration and the upward trend were overemphasized; (2) that they failed to adjust for extensive amounts of watered stock; and (3) that the *same* 200 corporations were not used throughout the period considered.

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[23] Paul T. Homan, "Trusts: Early Development," *Encyclopaedia of the Social Sciences,* Vol. XV, p. 114.

[24] Adolf A. Berle, Jr., and Gardiner C. Means, *The Modern Corporation and Private Property* (Macmillan, 1935), p. 1.

[25] Berle and Means, *op. cit.,* p. 32.

[26] *The Structure of the American Economy,* Pt. I (National Resources Committee), pp. 106-107. The NRC figures (compiled under the direction of Dr. Means) are cited here, inasmuch as they represent a refinement over those included in Berle and Means, and are also more up to date.

[27] Cf. W. L. Crum, "On the Alleged Concentration of Economic Power," *American Economic Review,* March, 1934, pp. 69-83; and Rufus S. Tucker, "Increasing Concentration of Business Not Supported by Statistical Evidence," *The Annalist,* July 31, 1936, pp. 149-150.

An extremely penetrating analysis of the pros and cons of this debate has been made by Mr. Edwin B. George. And certain new data have been published which shed some additional light on the issues raised.

It is easiest to take up the three objections to Dr. Means's findings in reverse of the order just mentioned. Regarding the question of whether the *same* corporations were considered throughout, Mr. George concluded rather pointedly: "It is the growth of concentration that Berle and Means were exclaiming over rather than the growth of particular companies. This retort might be phrased more brusquely that the matter in hand was not a biography of corporations but a study of centralized control."[28]

As a matter of fact, as Dr. Means demonstrated, the growth of 150 identical corporations included in the list of 200 increased *more rapidly* from 1919 than did the entire 200.

In respect to the question of watered stock, the evidence seems to warrant the conclusion that this factor *understated* rather than *overstated* the growth of the 200 giants relative to all corporations. As Mr. George stated: "It will not be overlooked however that if 1909 stock values were swollen with water, then the values of the titans' gross assets were similarly inflated, and their subsequent growth understated to the extent that the water was expelled by 1924. . . ."[29]

The National Resources Committee was somewhat more explicit in stating: "Because the larger corporations on the whole 'watered' their stock to a greater extent than smaller corporations, the Berle and Means figures tend to minimize the growth in the relative importance of the larger corporations."[30]

The facts seem to indicate that there has been a very decided shift in policy on the part of the large industrial corporations of this country in regard to accounting procedures. Early in the present century many of them carried sizable assets in the form of good will, and other intangibles, as indicated by various studies of the Bureau of Corporations. Partly as a result of the publicity given to such practices there occurred a reversal of policy.[31] Moreover, in recent years, the tendency has been to create hidden reserves, through depreciation and other allowances, with the effect of understating the position of the large corporations in the economy.

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[28] Edwin B. George, "Is Big Business Getting Bigger?" *Dun's Review*, May, 1939, p. 32. (Other articles in this series by Mr. George were: "How Big is Big Business?" *Dun's Review*, March, 1939; and "How Did Big Business Get Big?" *Dun's Review*, September, 1939.)

[29] *Ibid.*, p. 34.

[30] *Op. cit.*, p. 106 ff.

On the third point—inclusion of "natural monopolies" with competitive industries—it is true that public utilities and railroads include within their structures very sizable quantities of capital equipment, and this tends to exaggerate[32] their position in the economy vis-à-vis small business. Here it is a matter of what one is talking about: if it is concentration of economic power, Berle and Means understated the picture, for they should have added in the large banks; if it is concentration in the market sense that is being considered, then both the top layers of economic power and the specific industry or product concentrations should be analyzed. These questions will be taken up in more detail below.

Concentration in Manufacturing. On the question of *trend,* it is true that part of the increase in importance of the 200 nonfinancial corporations was due to scores of mergers and consolidations in transportation and public utilities, attended, no doubt, by a liberal sprinkling of water in their capital structures.[33] However, available data indicate that manufacturing was by no means immune to the general upward trend in concentration.[34] For example, the top 5 per cent of the income corporations in manufacturing earned 76 per cent of the total manufacturing net incomes in 1918; by 1929 their proportion had risen to 82 per cent. And in 1937 and 1942 the figures were 81 per cent and 79 per cent, respectively.

This increasing concentration in manufacturing is confirmed by another series. The proportion of total manufacturing working capital held by 316 large manufacturing corporations rose from 35 per cent of the total in 1926 to 39 per cent in 1929, and by 1937 had reached 45 per cent (no more recent figures are available).[35]

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[31] The outstanding example of this was the U. S. Steel Corp. which was capitalized at $1.4 billion, or just double its tangible assets. In succeeding years, the Corporation siphoned off this excess "water" and finally, in 1938, the last $260 million of "good will" was written down to one dollar. Between 1901 and 1938, U. S. Steel's ingot capacity increased 173 per cent and its land, buildings and equipment rose 114 per cent, but its total assets increased only 15 per cent. Such practices by large corporations, of course, tend to understate the extent of increased concentration, as reflected by balance sheet data. (Cf. TNEC Hearings, Part 26, pp. 13,746 and 13,848.)

[32] Dr. Crum calculated that the 106 large industrials controlled 30.1 per cent of the industrial corporate wealth, as compared with 49.1 per cent as the control of American corporate wealth by the 200 largest nonfinancial corporations. (Cf. Crum, *op. cit.,* p. 73.)

[33] By 1930, in fact, about half the public utility industry was in the hands of three controlling groups, and an additional 10 control groups ruled over another 30 per cent of the industry. (Cf. Charles S. Tippetts and Shaw Livermore, *Business Organization and Control* [New York, 1932], p. 509.) This situation led directly to the Federal Trade Commission's voluminous public utility inquiry which, in turn, resulted in the Public Utility Holding Company Act of 1935. The SEC has been in the process of depyramiding the public utility industry ever since.

[34] Much of the data in the ensuing pages are included in the report of the Smaller War Plants Corporation, *Economic Concentration and World War II,* 1946, 79th Cong., 2nd sess., Doc. No. 206, pp. 4-20 (of which the present writer was co-author).

But since manufacturing is considered the fountainhead of competition, more detailed information was needed. While it was impractical to attempt to trace the development of concentration in each industry or product, it was feasible to measure the extent of concentration in manufacturing in the thirties. Such information was provided by three successive studies that by steps shifted attention more and more from the general to the specific.

The Twentieth Century Fund determined the proportion of the employment accounted for by the six largest companies in a wide range of industries.[36] From a list of 84 manufacturing industries employing 58 per cent of the total number of wage earners, it was found that the degree of concentration ranged from 91 per cent for the four largest cigarette concerns to less than 4 per cent for the six largest manufacturers of women's clothing. In 46 of the 84 industries more than one-half of the wage earners were concentrated in the six largest concerns.[37]

For the year 1935, the National Resources Committee carried the analysis one step further, by examining (among other things) the concentration in manufacturing industries, as measured by production. Variations similar to those indicated by the employment measure were found: the range was from high concentration in such industries as automobiles, cigarettes, and agricultural implements to relatively small concentration in industries like cotton textiles, knit goods, and clothing. Pointing out that the data "greatly minimize the degree of concentration in relation to the market,"[38] the committee found that in about one-third of the Census industries the largest four companies in the industry contributed more than half of the value of product of the industry, while in 60 per cent of the industries the largest four companies contributed more than a third.[39]

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[35] For original sources of data see *ibid.*, p. 352; also Howard Bowen, "Trends in the Business Population," *Survey of Current Business*, March, 1944. The use of income series has been criticized by Tucker, *op. cit.*, on the grounds that large corporations frequently have small incomes, or even deficits. This limitation would appear to apply more in depressions than in peaks of the business cycle, which are compared above.

[36] Alfred L. Bernheim, M. J. Fields, Rufus S. Tucker, and Margaret G. Schneider, *Big Business: Its Growth and Its Place* (Twentieth Century Fund, 1937).

[37] *Ibid.*, pp. 42-43. According to the Fund: "The list [of industries included in the survey] is somewhat skewed in the direction of higher concentration because of the exclusion of certain large industries in which it was known that there was no appreciable degree of concentration or monopoly, and because of the inclusion of certain small industries in which it was believed that some concentration was likely to be found." On the other hand, it pointed out: "The figures for each group of establishments owned by one concern do not necessarily represent the total size of that concern, but only its size within the particular industry in question. A business entity often functions in several distinctly different industries, as, for example, an automobile manufacturing enterprise which may also operate plants in the glass and paint industries." Pp. 41-42 ff.

[38] The three factors tending to minimize concentration were: (1) broadness of Census industry categories (e.g., cotton manufacture includes such diverse activities as surgical gauzes, tire fabrics, belting, sheeting, yarns, and print cloths); (2) data refer to national totals, whereas certain products are sold on a local basis; and (3) no account taken of product differentiation. National Resources Committee, *op. cit.*, pp. 114-115.

The refining process was carried to a *product* level by the Temporary National Economic Committee.[40] An examination was made of some 1,807 specific manufactured products, in order to determine their degree of concentration. These 1,807 products represented approximately one-half of all the products reported in the Census of Manufactures of 1937, both by number and by value, and the sample was selected to yield a comprehensive cross-section of the product structure of manufacturing.

On the basis of this sample, it was found that for manufacturing as a whole, one-third of the total value of products was produced under conditions where the leading four producers of each individual product turned out from 75 to 100 per cent of the total value of the products. No less than 57 per cent of the value of product was produced under conditions where the four largest producers of each product turned out more than half of the total.

Of the major products, that is, those with an aggregate production value in 1937 of more than 10 million dollars, there were 121 in which more than three-fourths of the output was manufactured by four firms. In the case of no less than 41 of these, output was too centralized for publication of the figures, owing to regulations against disclosure.[41]

Nor was high concentration to be found only in the high value products. On the contrary, the concentration ratios are generally even higher in terms of number of products than in terms of value. Thus, for approximately three-fourths of the total number of products on the list, concentration ratios exceeded 50 per cent, about half were above 75 per cent, and nearly one-third exceeded 85 per cent. In other words, if you scan the entire product list and choose an item at random, there is a better than three-to-one chance that it takes only four producers to turn out half of the nation's total production of the item. The chances are even than the "big four" manufacture more than 75 per cent of the total output, and the chances are in one out of three they turn out 85 per cent or more.

These figures do not, of course, measure the full extent of concentration in the market sense. In the first place, they are measured on a national basis, whereas many products have local markets, and are highly concentrated within such market areas. In the second place, no account is taken of the extent to which large corporations dominate the output of more than one product.

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[39] *Ibid.*, p. 115.

[40] TNEC Monograph No. 27, *The Structure of Industry*, pp. 416-418.

[41] In many cases only a very few companies actually participated in the production of these products. For example, there were only four producers manufacturing inlaid linoleum and alternating current watt-hour meters. Only five companies manufactured steel rails, car and locomotive wheels, lead oxide, and beer cans. Six companies were responsible for the country's output of corn and other syrups, and rolled and forged axles, and so on.

One of the most important aspects of this study is the extreme degree of concentration which is revealed among many individual products in such relatively nonconcentrated industries as textiles, furniture, and others.

As a general proposition, it may be concluded from these three studies by the Twentieth Century Fund, the National Resources Committee, and the Temporary National Economic Committee, that as the information on concentration becomes more detailed and specific, the degree of concentration revealed tends to become higher.

Concentration of Control in Interest Groups. These three studies, therefore, provided an extremely valuable body of detailed information in regard to the concentration in particular industries and in particular products. The economic system, however, does not function in airtight compartments, each commodity seeking its competitive level, irrespective of the behavior of other forces. Such a conception was implicit in some of the criticism leveled at Dr. Means for lumping the so-called "natural monopolies" with the competitive industries. The Twentieth Century Fund recognized this aspect of the problem when in the last paragraph of the study referred to above, under the heading "Whole Story Not Told," it stated:

> One final word must be added. The figures presented in this volume do not tell the whole story of the concentration of wealth and income in the hands of the giant corporations. Concentration can be effected and control exercised in ways that are not subject to statistical measurement—for example, through interlocking directorates, investment trusts, trade associations and banking affiliations. It is beyond the scope of this volume to discuss these and similar instruments of concentration and control, *but their existence should be kept in mind when appraising the evidence in the foregoing pages.*[42] (Italics added.)

The recognition of such a structure of indirect controls is not of recent origin. Such controls were examined in the famous Pujo Committee investigation of the "Money Trust" in 1913 and eloquently described by Justice Brandeis in his book, *Other People's Money.*

The National Resources Committee has afforded us some quantitative appreciation of the controls exercised over industry by a few top "Interest Groups." As a result of the committee's study, it is possible to look through the other end of the telescope, so to speak, at the top layer of controls which affect market activities.

On the basis of a detailed consideration of such factors as stock ownership, interlocking directorates, common affiliations with investment banks, intangible personal interrelationships, and combinations of these factors, the committee found that eight interest groups controlled at least 106 of the 250 largest corporations of the country (including banks). Moreover, in 1935 the corporations under the domination of these eight interest groups possessed nearly 29 per cent of the assets of all nonfinancial and banking corporations in the country.[43]

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[42] Twentieth Century Fund, *op. cit.*, p. 102.

Two of these interest groups—Morgan-First National and Kuhn-Loeb—stem primarily from activities of financial institutions, and the community of interest within these respective spheres of influence is a matter of long association based on promotion, reorganization, handling of new security issues, interlocking directorates, and other factors. The Rockefeller, Mellon, and du Pont groups rest upon a solid core of ownership control. The remaining three of the eight major interest groups stem neither from particular financial groups nor from prominent families, but rather bring together corporations whose activities center in specific localities. These groups—Chicago, Boston, and Cleveland—include one or more banks located in the center for which they are named, industrial activities carried on in the vicinity, such as meat packing in Chicago, shoe machinery in the Boston area, and steel in the Cleveland district; and in the case of two of the groups, local utilities.

The committee pointed out that "the eight interest groupings depicted . . . are by no means independent of each other"; it emphasized that the extent that corporate policies are influenced by these interest groups is a matter which only extensive study could disclose, but concluded: "The main importance of the corporate community . . . lies in the controls exercised over the policies of the larger corporations, through them affecting the whole American economy."[44]

The whole subject of interest groups represents, of course, a very nebulous problem. While the National Resources Committee designated eight interest groups, this does not necessarily mean that there are not additional groups. The extent of the control and influence exercised by these groups may be more or less than the committee found. Only a very thorough and extensive investigation could determine the actual extent of financial influence and control. However, the difficulty of obtaining accurate statistical data necessary to measure the precise extent of such controls does not constitute an adequate basis for assuming their nonexistence.[45]

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[43] Cf. SWPC, p. 18.

[44] National Resources Committee, *op. cit.*, p. 63. Dr. Tucker (*Journal of Marketing, op. cit.*, p. 256) made two criticisms of the NRC study of "interest groups"; namely: (1) " . . . the directors alleged to belong to these groups are nearly always a minority of the board of each corporation they are alleged to control"; and (2) "Moreover, the eight groups may be presumed to be looking out for their own interests, and if so each one is a limitation on the others." Neither of these arguments seem valid. The first point can be answered by the committee's own words: "Interlocking directorates alone are not sufficient evidence of a close interrelationship between corporations. Neither is the possession of a minority stock interest alone evidence of close association. Nor is a single instance of the underwriting of a corporation's securities by a particular investment house evidence of a close association between the two. *But when a corporation was initially promoted by a particular investment firm, when all its new security issues are handled by that firm, when the two have directors in common, and when other evidence of a less precise nature points to a close association between the companies, it seems appropriate to treat them as part of a single interest group.*" (Pp. 161; italics added.) The second point assumes that financial oligopoly is just as conducive to competition as a wide diffusion of control, and overlooks the fact that in numerous instances, as pointed out by the committee, "each of the interest groups comes in direct relation to each other group in connection with one or another of its activities." (P. 163.)

Although, as the TNEC pointed out, " 'control' is a very elusive concept,"[46] yet, as the Department of Justice recently stated: "Industry's silence on banker influence is mute testimony to its strength, not a sign of its absence. As long as they are dependent on a particular banking group for their financing, they dare not protest against such influence, even if it means that a particular company does less business than it would if it were free to compete more vigorously."[47]

Concentration in World War II. The high degree of concentration which characterized World War II may be summarized very briefly. One hundred corporations handled no less than two-thirds of the prime war supply contracts;[48] 100 corporations consumed 45 per cent of the carbon steel, 70 per cent of the alloy steel, 81 per cent of the aluminum, 79 per cent of the copper, and 66 per cent of the copper-base alloy. One hundred corporations accounted for over half of the private "war" facilities built under "certificates of necessity" and operated three-fourths of the government-built plants. Two-thirds of all the federal research and development contracts were allocated to 68 companies, and nearly half went to only 20 corporations. And the 200 largest manufacturing corporations in 1944 accounted for 43 per cent of the total manufacturing sales, as compared with 39 per cent reported by the 200 largest in 1939.[49]

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[45] Interest groups are by no means static. Some rather significant changes have occurred since the National Resources Committee completed its work. To mention a few, the rise of Robert R. Young to take over working control of the Alleghany railroads (which was just in process as the committee completed its work) as well as the New York Central, has removed a substantial "chunk" from the Morgan-First National sphere of influence. The fusion of interests of the Rockefeller, Mellon, Chicago, and Boston groups into the First Boston Corp., the country's largest security underwriting house, also has interesting implications. And very recently the Mellons have joined forces with the Hanna interests in the Pittsburgh-Consolidation Coal merger, and in the jointly organized Missouri-Illinois Furnaces, Inc., for the purpose of entering the Midwestern steel picture.

Little study has been made of the place of insurance companies (as well as investment trusts) in the "interest group" picture since the Pujo investigation of 1913, and the extent of "banker control" is often a matter of conjecture. Nor have the realignments being brought about by the Public Utility Holding Company Act of 1935 been carefully scrutinized to determine their effects on the structure of controls.

Robert A. Gordon, in his *Business Leadership in the Large Corporation* (Brookings Institution, 1945), asserted that investment bankers have suffered a loss of power (as compared with 1890-1930), but the large insurance companies have enjoyed an increase in influence. There was, however, very little in the way of concrete proof of this contention that Dr. Gordon could point to. He did conclude with this note: "One should not, however, exaggerate the extent of this decline in influence. Some financial groups have suffered more than others. And banks and bankers, though they may not possess the power that they once did, still form a highly important part of the institutional environment conditioning the exercise of business leadership." (P. 221.) It might be suggested that the Department of Justice complaint against the Investment Bankers Association *et al.* would indicate the inadvisability of drawing hasty conclusions about the "declining influence of banks and bankers."

[46] TNEC Monograph No. 29, *The Distribution of Ownership in the 200 Largest Nonfinancial Corporations,* p. 99.

[47] Statement of Antitrust Division, Department of Justice, on: "Control of Monopolies by Financial Groups," in *United States* vs. *Economic Concentration and Monopoly,* Staff Report of the Monopoly Subcommittee of the Committee on Small Business, House of Representatives, 79th Cong., 1946, p. 239.

Post-World War II Trends

The level of concentration in the coming years will be determined principally by four basic factors: (1) the distribution between large and small business of the volume of new postwar facilities, (2) the disposal of government war-built facilities by the War Assets Administration, (3) the current merger movement, and (4) the level of economic activity. There are no available data concerning the first factor, while the fourth is a matter of pure speculation. But there is some information concerning the second and third, which is summarized below.

Disposal of Government Facilities. A perspective on the probable effects of the sale of government plants may be gained by considering the situation at the peak of war production. At that time, the 250 largest manufacturing corporations were in charge of roughly 65 per cent of the nation's total productive facilities usable for peacetime purposes. But of even greater importance, the capacity owned or operated by these giant corporations nearly equaled the *entire* facilities owned by all manufacturing corporations in the country in 1939.[50] Thus, the distribution of these facilities in the postwar period is a crucial factor in the future trend of concentration.

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[48] An analysis of subcontracts may be found in the SWPC report on pages 32-33. The findings were to the effect that subcontracting was not as extensive as commonly assumed; and that the greater part of the subcontracts went to large rather than small firms.

[49] The 200 corporations were ranked in each year according to total asset size and related to the Department of Commerce series of sales of all manufacturing corporations. A comparison of identical giants (i.e., a fixed group by the 200 largest in 1939) shows little change, inasmuch as a number of the top corporations dropped out of the list principally because they were in nonwar industries, while several corporations directly engaged in war work (e.g., aircraft firms) entered the list. According to the Department of Commerce, "The War period brought numerous shifts in the ranks of largest companies. By 1943, for example, 30 producers of war-needed goods had moved into the category of '200 largest.' About half of these, however, did not retain their status after the war. At the end of 1946, a total of 26 prewar largest concerns had failed to regain a place among the top 200." (Cf. K. C. Stokes, "Financial Trends of Large Manufacturing Corporations, 1936-1946," *Survey of Current Business,* November, 1947, p. 23.)

[50] SWPC, pp. 39-46.

First, it should be remembered that no less than one-third of the new facilities added during the war were privately financed. These facilities, of course, are owned by the companies which built them and are in no way affected by government disposal policies. Moreover, under wartime amortization and carry-back provisions of the revenue laws, these private facilities could be written off, and tax credits received, over a period of five years. Thus, to the extent that the giant corporations participated in the wartime private expansion of facilities, their position was enhanced.

Regarding the disposal of government facilities, several features should be noted. The so-called "scrambled facilities," which were built as additions to the productive capacity of existing plants (notably in the steel industry), will tend to increase economic concentration, since they will be useful only to their wartime operators; that is, generally to big business. The second limitation on disposals is the purchase options often granted the wartime operator, which together with the "right of first refusal" clause inserted in many facility contracts would tend to discourage outside interest in the facilities. Finally, although the Surplus Property Act was supposed to "discourage monopolistic practices, to strengthen and preserve the competitive position of small business [and] to foster the development of new independent enterprise," there was no clear mandate to the disposal agencies to use the surpluses as a means of reducing the level of economic concentration. In numerous instances the War Assets Administration has felt bound to follow other criteria, such as "good return" on government investment, speed of disposal, etc.

By the end of 1946 the government had disposed of sufficient facilities to suggest the pattern, and its effect on concentration. Plant facilities with a cost value of 2.5 billion dollars had been either sold or leased, while an additional 1.2 billions of so-called "cannibalized" equipment (equipment and machines removed from war plants and sold as separate units) had been sold. Thus, one-third of the value of all usable government-owned facilities had been distributed.[51]

Through the end of 1946, 86 per cent of the cost value of the plants

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[51] This is derived as follows (cost values in billions):

Total usable facilities added during war		$20.1
Less: Usable private facilities		8.6
Balance to be disposed of by War Assets Administration		11.5
Disposals through December 31, 1946		
Plants sold or leased	$2.5	
Cannibalized equipment sold	1.2	3.7
Balance to be disposed of		$ 7.8

Note: The distribution of "cannibalized" equipment is not covered below, since insufficient data are available as yet on its distribution.

sold had been disposed of to their wartime operators while one-third of the leases were made to wartime operators.[52] Sixteen corporations alone acquired (by sale or lease) 53 per cent of the total, and only one of these (Tucker Corporation) was not among the 250 largest manufacturing corporations. These same 16 corporations owned less than 15 per cent of the total prewar manufacturing facilities. By the end of 1946, some 87 of the 250 largest manufacturing corporations had either bought or leased plants. In all, these 87 giant corporations either purchased or leased some 209 plants, representing no less than 65 per cent of the reported cost of all disposals.

In the steel industry, sale of the integrated Geneva works to the U. S. Steel Corporation increased the latter's proportion of steel-making capacity from 33.8 to 35.1 per cent on a national basis, and from 17.3 to 52.7 per cent in the Far West. Purchase of the huge South Chicago plant (second largest steel plant built by the government), enabled Republic Steel Corporation, third largest steel producer, to secure the largest electric steel mill in the world. By obtaining this plant, Republic increased its position from the fourth to the largest electric steel producer, and its percentage of the nation's electric furnace capacity from 9 per cent to 28 per cent. Bethlehem Steel likewise exercised its option to buy six steel plants, paying the full reported cost of 20 million dollars. Clearly the gap between the "big three" and the remainder of the steel industry has been widened.

In the electrical machinery field, the two leading corporations have accounted for most of the disposals. General Electric leads all others, having bought 14 plants and leased 2, with a total cost value of 35.8 million dollars. Westinghouse was not far behind, taking over 23.6 million dollars of surplus plants. And in the agricultural machinery industry, disposals have been completely dominated by the leading producer. International Harvester, which produced about 37 per cent of the agricultural implements of the country, has purchased 5 surplus plants which cost the government 41.9 million dollars, for a price of 28.0 millions. Its purchase of the enormous Melrose Park, Illinois, engine plant permits International Harvester to expand into the industrial power field, where it can challenge the leaders in that industry, Caterpillar Tractor Company, and Allis-Chalmers. Allis-Chalmers (which has purchased about 2.5 million dollars worth of government plants) was largely responsible for cutting into the dominant position in the agricultural implement field enjoyed by International Harvester for so many years. Incidentally, through the end of 1946 neither Deere and Company nor J. I. Case Company, second and fourth largest agricultural implement manufacturers, respectively, had obtained surplus facilities, indicating clearly that insofar as surplus disposals are concerned, concentration has been increased in the agricultural machinery industry.

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[52] Cf. War Assets Administration, "Relations between Plant Disposal and Industrial Concentration" (2nd Report as of December 31, 1946).

An outstanding exception to this pattern has been the Aluminum Plant Disposal Program, which substantially reduced economic concentration in a monopolized industry and infused new competition into a basic field of industrial activity.[53] By the latter part of 1946 sufficient aluminum facilities had been disposed of to outline the postwar structure of the industry. Briefly, none of the basic facilities had been sold or leased to the Aluminum Company of America. Reynolds was able to improve its position materially, and Permanente Metals Corporation (Kaiser interests) gained a position in the industry as a new producer by acquiring alumina, primary aluminum, and fabricating plants.[54]

On balance, the tendency has been for the disposal of surplus government facilities to enhance the power of big business. In important specific industries—notably steel, electrical machinery, and agricultural implements—concentration has definitely been increased. In one important area, aluminum, an enlightened disposal policy has substantially curtailed the position of the formerly sole producer and injected new competition into the industry. And two new factors (Kaiser and Tucker) have entered the automobile field.

The Current Merger Movement. The second avenue for increased concentration in the postwar period is the merger movement."[55] Historically, the greatest increases in concentration have occurred through mergers, and merger movements have occurred principally after wars and in boom times. The outstanding features of the current merger movement may be summarized as follows:

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[53] Prior to the war, the Aluminum Company of America had been the sole domestic producer of primary aluminum and its source material, alumina. In addition, it owned more than 80 per cent of the U. S. fabricating capacity for all aluminum products, with the sole exceptions of foil, cooking utensils, and castings. The enormous wartime demand for aluminum required a nearly sixfold increase in capacity, most of which was government-built, but operated by Alcoa. Following the mandate of the U. S. Circuit Court of Appeals, and recommendations of the Department of Justice, the WAA gave first choice to competitors of Alcoa. In addition, it took steps to assist new producers by providing engineering investigations, assistance in developing suitable policies to control the disposal of surplus secondary metal, and aid in obtaining supplies. (Cf. First Supplementary Report of the War Assets Administration, "Aluminum Plants and Facilities," February 12, 1947, p. 2.)

[54] As of November 30, 1946, the relative shares of alumina capacity in private hands (both through ownership and leases) were: Alcoa 43.7 per cent, Reynolds 35.9 per cent, and Permanente 20.4 per cent; and for primary aluminum, 54.0 per cent, 29.2 per cent, and 16.8 per cent, respectively. (*Ibid.*, p. 4.) In sheet, strip, and plate—the most important fabricating field—Alcoa's proportion of private capacity was reduced from its prewar share of 87.2 per cent to 50.0 per cent. (Alcoa's current construction of 150 million pounds annual capacity for sheet at its Davenport, Iowa, plant will cause Alcoa's share of sheet capacity to rise to 54.3 per cent.) Thus, although Alcoa remains the leading factor in the U. S. aluminum industry, and through its Canadian affiliate, Alted, dominates the world aluminum industry, the domestic picture has been altered materially as a result of the policy of the War Assets Administration.

[55] Material for this section is taken largely from Federal Trade Commission, *The Present Trend of Corporate Mergers and Acquisitions,* 1947, supplemented with additional data for 1947.

1. Although wartime controls stimulated merger activity in certain nonwar industries (e.g., in the textile and distilling industries), the big wave of mergers occurred immediately after V-J Day when the level of merger activity was the highest since 1931.

2. The movement has been quite extensive. From 1940 through 1946 more than 1,800 formerly independent firms in the manufacturing and mining industries, alone, disappeared as a result of mergers and acquisitions.[56] And preliminary data indicate that the high level of merger activity continued into 1947. The asset value of the concerns acquired amounted to about 4.1 billion, or nearly 5 per cent of the total asset value of all manufacturing corporations in the country. Superimposed on the plateau of concentration prevailing before the war, this indicates a substantial shift in favor of greater concentration.

3. Two factors suggest that the current merger movement has enhanced the position of big business. In the first place, several of the traditionally "small business" industries have been affected. More than one-third of the total number of acquisitions were accounted for by only three industries; namely, food, nonelectrical machinery, and textiles and apparel—all predominately "small business" fields. Moreover, nearly one-third of the companies merged since 1940 have been absorbed by the very largest corporations—those with assets exceeding 50 million dollars. Nearly three-fourths of the total number were absorbed by corporations with assets of over 5 millions. During the period covered, 71 out of the 100 largest manufacturing corporations bought up about 17 per cent of all companies acquired, while another 49 of the second 100 purchased about 10 per cent of the total. In other words, 120 out of the top 200 corporations accounted for 27 per cent of all the mergers. The other half of this picture of large corporations taking over small firms is shown in the fact that fully 90 per cent of all the

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[56] According to the FTC: "The statistical series on mergers is based upon reports of mergers and acquisitions in the manufacturing and mining fields, published in Moody's and Standard & Poor's investment manuals. These figures, while they probably correctly reflect the trend in acquisitions, substantially understate the actual number which has taken place, since they include only acquisitions by those companies large enough or important enough to be mentioned in the financial manuals." Thus, in the field of textiles alone, it is known from a special survey made by *Textile World* that only 40 per cent of the acquisitions which took place were mentioned in the financial manuals. *Ibid.*, p. 6 ff. It is not valid, therefore, to compare the number of mergers reported with trends in the business population, as was done by the National City Bank *Monthly Letter on Economic Conditions* (of June and July, 1947 issues). New entrants into the business population, of course, are predominantly small, whereas firms acquired are usually medium-sized, or larger. Thus, the more significant figure is the percentage of the total manufacturing assets changing hands as a result of mergers.

firms bought out had assets of less than 5 million dollars, and 70 per cent had less than 1 million of assets. Thus, in contrast to some earlier merger movements, the present one is characterized principally by big firms buying smaller firms, rather than combinations of big corporations.[57]

Outlook for Concentration

What is the outlook for concentration? On the basis of historical precedent, it may be assumed that under continued prosperity the merger movement will be further accelerated. Likewise, high level activity and full employment enhance the attractiveness of government facilities. The inflation, incidentally, has greatly speeded the disposal of facilities, as on a monetary basis their values have increased, and as delays in new construction[58] have made it more feasible to buy existing plants.

In the event of a depression, the outlook for small business is even more unfavorable. The merger movement will fall off, and the sale of government plants (if not virtually completed by that time) will decline sharply. The position of big business, however, will already have been greatly fortified, through war plant purchases and mergers. Then it will be a matter of staying power. After the 1929 break, it will be recalled, concentration increased by virtue of attrition. Whereas the 200 largest nonfinancial corporations held 48 per cent of the total assets (less taxable investments) in 1929, their proportion rose to 55 per cent in 1931. As has been shown, the 250 largest manufacturing corporations at the peak of the war held two-thirds of the total usable manufacturing facilities, or, in absolute terms, almost as much as the entire facilities owned by all manufacturing corporations in the country prior to the war. Since the pattern of disposal of government facilities is to maintain this unbalanced situation, the pressure upon small business in the event of a depression will be severe.

From 1944 to 1946, one economic activity index of concentration, namely, the proportion of sales handled by the 200 largest manufacturing corporations, receded to below the 1939 level.[59] This decline, however, reflects the shift in the economy back to peacetime operations, reconversion delays and strikes which brought a precipitous drop in durable goods sales at the same time that sales expanded in nondurable goods industries (where small business is relatively more important). The extent to which the relative position of the giants in terms of economic activity will be restored or increased in a period of normal peacetime operations is, of course, a matter of conjecture.

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[57] This may be because of the shadow of the Sherman Act as suggested by the following quotation from *Business Week* (July 26, 1947, p. 70), regarding a rumored merger between Publicker Industries, Inc., and National Distillers Products Corp. Publicker has recently become one of the largest distillers in the country, converting the liquor industry's "Big 4" into the "Big 5." According to *Business Week:* "If the rumors prove true, the upshot will be a mammoth enterprise holding whiskey stocks 50 per cent greater than Schenley's, twice those of Seagram's. Doubters in the street put little stock in the rumors. Behind their reasoning lies a belief that such a merger might be followed by antitrust proceedings." It is worthy of note, however, that a recent Department of Commerce report reveals that of 1,000 of the larger manufacturing corporations in 1939, the list had been reduced to 974 "chiefly because of mergers and acquisitions within the original group." Cf. K. C. Stokes, *op. cit.* (Table 1), p. 17.

[58] There are no adequate data available as to size-class breakdowns of *new* construction.

In terms of total assets, the position of the 200 giants has been maintained at the 1944 level (although remaining below 1939). Trends based on balance sheet data, however, are often subject to misinterpretation, because of changes in accounting procedures, shifts in classification, etc. During the war it was exceedingly difficult to follow the trend of concentration on the basis of corporation reports. While the large corporations operated the bulk of the government war plants, their private facilities were depreciating (on an accelerated basis where they represented new wartime construction). Currently, the big companies are purchasing most of the government plants, but they are being entered on the books at substantially less than their original cost or true economic values (and, incidentally, government leases do not appear as assets). Thus the importance of the assets of the giant corporations is understated—an understatement which is particularly significant in the metals and chemicals industries.

Perhaps no better example of the vast difference between economic values and balance sheet entries could be suggested than the comparison of the U. S. Steel Corporation's purchase of the Geneva steel plant with the Kaiser purchase of the Fontana steel plant. The War Assets Administration sold the Geneva plant to the U. S. Steel for a price of 40 million dollars. It has capacity to turn out 1,280,000 tons of steel ingots per year. Kaiser is negotiating for the Fontana plant at an approximate price of 100 millions; the plant's peak wartime capacity was 720,000 tons per year. Thus, on the basis of assets as reported on the

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[59] *200 Largest Manufacturing Corporations*

	Per Cent of Total			
	1939	*1944*	*1945*	*1946*
Gross Sales	39.2	43.3	40.3	36.2
Total Assets	49.8	46.2	45.4	45.9

Note: Gross sales are related to the Department of Commerce series for all manufacturing corporations. Total asset figures are related to the Bureau of Internal Revenue totals for all corporations, after adjustment to include estimates for corporations not reporting balance sheets. Adjustments were also made to place the figures on a consolidated basis throughout, since B.I.R. permitted nonconsolidated returns only after 1941. Corporations are *ranked in each year* according to total asset size. Most of the 200 in this list are included in the 250 list mentioned in the text above, the principal differences being that firms such as Kaiser, which had few private assets until recently (and still leases much of its equipment) were not included in the 200 list.

balance sheets of the two corporations, Kaiser will have improved its position handsomely relative to U. S. Steel, but in terms of steel tonnage these new facilities represent less than three-fifths of the new Geneva capacity going to U. S. Steel.

Future studies of the trend of economic concentration should not rely on over-all figures, referring to aggregates for manufacturing, or other broad segments of the economy. Just as the Berle and Means analysis led to further specialized investigations which examined concentration on an industry and product basis, so should more specialized information be assembled in the future, as from the forthcoming Census of Manufactures. In regard to Census data, the limitations caused by the disclosure rule are very serious, and sometimes ludicrous. For example, it was impossible for years to secure meaningful Census figures on the aluminum industry, because of the rules against disclosure. Yet, at the same time comprehensive data on that industry were made freely available in other sources. Similarly, data on the steel, copper, lead, automobile, and other industries are readily available, on a company-by-company basis, in various trade publications. There is the further question of whether or not the public interest and the survival of competition demand the publication of data for industries which are so highly concentrated that nothing can be disclosed under the present rules.

While attention should be focused on concentration on an industry-by-industry and commodity-by-commodity basis, the other end of the telescope should not be neglected. In other words, it is equally imperative that the global aspects of economic power be continuously under critical review, and studies of "interest groups" and other control mechanisms should be improved and expanded.

At long last the importance of conducting continuing studies of concentration is beginning to be recognized in Congress, for the House Small Business Committee in its Staff Report on *United States* vs. *Economic Concentration and Monopoly* stated:

> At the present time there is no test of the effectiveness of the Government's efforts to prevent concentration. Moreover, concentration is such a broad and incomprehensible problem that the public tends to become even vaguely aware of its importance only when there is a "trust buster" to dramatize it.
>
> Therefore, in order to provide a continuous test of the Government's efforts to prevent concentration and to permit an informed public awareness of the problem it is recommended that an official Index of Concentration be continually maintained. This would be a central source of information on the extent of concentration both on an over-all basis and industry-by-industry and trade-by-trade.[60]

If this paper has done no more than delineate some of the questions for which definitive answers might be supplied by such studies, it has certainly fulfilled its purpose.

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[60] *Op. cit.*, p. 12.

POSTWAR TRENDS IN INTERNATIONAL BUSINESS ORGANIZATION

By Raymond Vernon
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In these parlous times, one takes his courage in his hands to speak of postwar trends in any aspect of international economic affairs. With the details of the European Recovery Program still to be resolved and the structure of Europe's economies still in rapid flux, the continuity of any seeming trend is an open question. The subject matter of this paper is peculiarly vulnerable from that viewpoint. Trends in international business organization bearing on problems of competition and monopoly, which is the subject I hope to explore in the next half hour, shift easily with political and economic vicissitudes. What little I have to say in the way of prediction, therefore, will be said perforce with the greatest diffidence.

I

At the outbreak of World War II, the channels of international trade in many products were enormously influenced and sometimes wholly determined by cartel agreements; that is to say, by agreements among private enterprises which limited competition by dividing markets, allocating customers, fixing prices, preventing the application of technological advances, and so on. To the superficial observer today, the disruption of the war appears clearly to have brought about a general loosening of these cartel ties. This surface trend, of course, has been inevitable. For to a considerable degree, the agreements on which cartels are based cannot survive long periods in which the parties are barred from intercourse. Consider, for example, the most important type of cartel contract; the patent and process interchange agreement.[1] Such a contract, in addition to laying down restraints upon the parties in the use of technology, also requires the continuous conveyance of technical information between them, the adjustment of terms to new technological developments, the arbitration of differences, and so forth. Hence, the breakdown of normal channels of communication has been sufficient in itself to weaken many cartel ties.

Moreover, the war has brought with it a train of legal consequences which have weakened cartels even further. The king pin in many cartels

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[1] For an appraisal of the role of the patent agreement in international cartels, see Corwin D. Edwards, *The Economic and Political Aspects of International Cartels* (Washington, 1946), pp. 3-7; Robert P. Terrill, "Cartels and the International Exchange of Technology," *American Economic Review*, May, 1946, pp. 745-767; and Walton Hamilton, "Cartels, Patents and Politics," *Foreign Affairs*, July, 1945, pp. 582-593.

—notably in pharmaceuticals and dyestuffs, electrical products, photographic equipment, synthetic fibers, steel, and various types of machine products—were the German participants. In many countries, enemy property custodians have vested the German interest in these contracts and will not return them to the Germans.[2] In other jurisdictions, whether or not the contracts have been vested, the parties are faced with the possibility that the courts will declare them void or unenforceable.[3] In still other cases, the treaties of peace have or are likely to terminate cartel contracts.[4] Meanwhile, the United States has taken steps by enforcement of its antitrust laws to bring about the termination of other principal cartel contracts.[5] All this has been supplemented by broadside action in Japan and in the American-British bizonal area of Germany; in both these occupied areas the United States has sponsored the adoption of laws nullifying cartel contracts.[6]

Where enterprises in different countries have been linked by corporate ties rather than by contractual relationships—that is to say, where an international combine has been set up—the structure has weathered the war rather better. This is natural enough. For the combine's structure is based upon a parent company's ownership of stock in subsidiaries or upon interlocking stockholdings by operating companies; and whatever lethal effect war may have on contractual rights on which cartels are based, it does little more than suspend the foreign property owner's privileges, when the property owner is a national of a victor nation or a neutral state.[7] Accordingly, while some international German combines, such as I. G. Farben or Robert Bosch, may prove to have been effectively separated from their foreign properties by the divesting activities of the various enemy property custodians of the

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[2] Paris Agreement on Reparations, January 14, 1946, Final Act, Art. 6; signatories of this agreement are Albania, Australia, Belgium, Canada, Czechoslovakia, Denmark, Egypt, France, Greece, India, Luxembourg, Netherlands, New Zealand, Norway, Union of South Africa, United Kingdom, United States, and Yugoslavia. Also agreements between the United States and Sweden, Switzerland and Italy concerning disposition of German external assets. (*Department of State Bulletin,* July 27, 1947, p. 155 [Sweden], June 30, 1946, p. 1101 [Switzerland], and August 24, 1947, p. 371 [Italy].) Agreements with Portugal and Turkey are now being negotiated.

[3] Sidney Diamond, "The Effects of War on Pre-existing Contracts Involving Enemy Nationals," *Yale Law Journal,* September, 1944, pp. 700-720, and Heinrich Kronstein, "The Effect of War on Long-Term Contracts," *Georgetown Law Journal,* May, 1947, pp. 429-467.

[4] Cf. Treaty of Peace with Germany, Versailles, June 28, 1919, Art. 299 a and b and Art. 310; Treaty of Peace with Italy, 1947, Annex XVI.

[5] For a list of recent cases, see Commerce Clearing House, Inc., *The Federal Antitrust Laws* (Washington, 1947), p. 177 ff.

[6] Isaiah Frank, "American Policy Concerning German Monopolies," *Department of State Bulletin,* May 11, 1947, pp. 917-918, and Raymond Vernon and Carolene Wachenheimer, "Dissolution of Japan's Feudal Combines," *Department of State Bulletin,* July 13, 1947, pp. 58-60.

[7] Cf. Sigmund Timberg, "International Combines and National Sovereignty," *University of Pennsylvania Law Review,* May, 1947, pp. 575-620.

Allied and neutral nations,[8] combines which head up to a nonenemy parent may be expected to have survived the hazards of the war and postwar period relatively unimpaired in structure.[9]

Oil companies engaged in international trade for a long time have been aware of the durability of the corporate structure as a method of association, with the result that joint distributing companies and joint development companies have characterized business associations in this field. This is well illustrated by the situation in the Middle Eastern oil fields. The oil of the Middle East is concentrated in Iran, Iraq, Kuwait, and Saudi Arabia. The oil of Iraq is subject to a concession granted to a joint enterprise consisting of British, French, and American oil companies. The British participants in this joint enterprise also hold concessions covering the Iranian fields. In addition, the same American oil companies have joined two other American concerns in a company which holds the concession over Saudi Arabian oil. The British companies, in partnership with still another American firm, control Kuwait oil. To supplement these more or less permanent ties, large-scale supply contracts among the various British and American participants link in a cohesive whole the interests in Iraq, Iran, Saudi Arabia, and Kuwait. The war has not impaired the corporate ties, described above, most of which go back a decade or more, but postwar conditions have required some reshuffling in the supplementary contractual arrangements.[10]

The illustration of the Middle Eastern oil fields suggests not only that combine relationships are durable but also that contractual agreements, though they may be weakened by war, can readily be replaced by new agreements. And in the ordinary course, one could well anticipate that prewar contractual arrangements, whether restrictive or not, would be resumed with appropriate adjustments for changed conditions. But in considering whether this will occur, and in what form, consideration has to be given to certain fundamental changes which are going on within the domestic economies of many of the principal trading partners of the United States.

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[8] See footnote 2, *supra.*

[9] To be sure, the German and Japanese deconcentration laws may require the divestiture of some properties in those countries held by foreign parents. Frank, *op. cit.*, and Vernon and Wachenheimer, *op. cit.* But it is not yet clear to what extent that aspect of these laws will be successfully applied. See, e.g., "Japanese Industries to be Split in New Move to Aid Democracy," and "Ending of Cartels in Germany Slow," *New York Times,* September 20, 1947, pp. 6 and 8.

[10] The recent history of the present control begins in 1928. In that year, the major international oil companies of the world agreed to refrain from any independent development of oil within an area roughly equivalent to the old Ottoman Empire, and to operate in that area only on a joint basis. Because the area was indicated by a red line drawn on a map attached to the agreement, the contract came to be known as the "red-line agreement." In this connection, the Iraq Petroleum Company was formed, which in time came to be owned by the Compagnie Francais de Petrole, Anglo-Iranian Oil Company, Shell Oil Company, Standard Oil Company of New Jersey, and Socony-Vacuum Company, and an Armenian national, Gulbenkian by name. The Texas Company and Standard Oil Company of California, not being parties to the agreement, obtained from Ibn Saud a huge concession within the red-line area, and for more than a decade operated in this area, through their joint subsidiary, without regard for the "red-line agreement." But in the past few months, the "red-line agreement" has been abandoned and the California and Texas companies have expanded their joint Saudi Arabian company to admit Standard of New Jersey and Socony-Vacuum as fellow stockholders. See "The Great Oil Deals," *Fortune,* May, 1947, pp. 139-143, 175-182; and United Nations Economic and Social Council, E/449, Lake Success, 2 July 1947, E/449/ Add. 1, Lake Success, 31 July 1947.

II

Doing business with Amtorg is a different matter from dealing with the Swiss Watchmakers' Federation; and dealing with a Swiss industry is much different from exporting to a single Canadian manufacturer. The differences, it is clear, are not simply differences of currency and geography; they reflect the nature of the rights which businessmen can exercise internally in each of these countries. It follows that to understand the drift of postwar trends in international business, one should consider at the outset what has been happening internally to business in the important trading areas of the world.

The overriding fact in international trade today is the existence of scarcities—scarcities not only of such raw materials as coal, wheat, and the like, but also of the fabricated products, such as steel, dyestuffs, and electrical products, which typically have been the subject of international agreements among private businessmen. Virtually every government in the industrialized areas of the world has responded to those difficulties with some measure of direct economic control. These measures have run a familiar gamut: price control, rationing, licensing of transactions in foreign trade, exchange regulations, and the like.

Now in most Western European economies there are two outstanding groups which espouse planning on a national scale—the socialist parties and the representatives of industry. To be sure, the instruments and objectives of such planning on the part of each of these groups are somewhat different. The socialists, while desirous of achieving success for their industries in a commercial sense, would presumably lay heavy emphasis upon national security and the perpetuation of political power. A group of private businessmen, on the other hand, while concerned with national security and even perhaps with political power, would place greater weight upon profits as a yardstick of achievement.[11]

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[11] One can easily exaggerate the differences in the behavior and motivation of state-owned and large privately-owned enterprise; cf. J. A. Schumpeter, *Capitalism, Socialism and Democracy* (2nd ed., 1947), pp. 132-134 and 205-210. But it would be absurd to assert that important differences do not at times exist. In a mixed economy, those differences are less likely to be in evidence in periods of expanding business than in periods of contraction. It may be, therefore, that the differences among the industrial planners in Western Europe—the socialists and the businessmen—will not really become acute until after the current period of shortages.

Moreover, the socialist would be disposed to integrate his plans for the economy as a whole whereas the businessman would more likely confine his planning to intra-industry collaboration.[12] But, as we shall presently see, both of these groups recognize in the present crisis and its attendant compulsion to rationalize, the opportunity to introduce such planning on a permanent basis. Who should do the planning, and with what primary objectives, will be the subject of a running battle for years to come but at the moment there is wide agreement in these groups that planning must be done.[13]

In Great Britain, the most spectacular developments in recent years along these lines have had to do with the Labor Party's nationalization program.[14] By the fall of 1947, the program had materialized in the nationalization of the Bank of England, coal industry, cable and wireless communications, and civil aviation, and had brought into public ownership all inland transport and the electricity supply industry. In the immediate or remote offing, unless political circumstances prevent, the coal-gas supply industry and possibly certain sections of the iron and steel industry also will go through the nationalization wringer.[15]

But more pervasive than the nationalization program is the pattern contemplated by the Industrial Organization Act recently passed by Parliament.[16] The Act is an outgrowth of the recommendations of the so-called "Working Parties" set up by the government to survey Britain's principal industries and determine why they have ailed. The Working Party reports so far published have universally deplored, with varying degrees of emphasis, the lack of central industrial planning, to which they attribute in part the various industries' shortcomings in technical research, employee training, cost analysis, efficiency of equipment, and so forth.[17]

The Industrial Organization Act will place government investigation and planning of industry upon a permanent basis. As the Laborites see it, the Act will afford the government a regular means of nudging an industry from without in order to persuade it to operate more fully in the public interest. If the report of the cotton Working Party is any guide, the government in due course will be recommending to a wide range of industries that they "should work together in groups," that they should develop a co-operative marketing company, that they should co-operate with other industries with which they might otherwise compete (as exemplified by the relation between the cotton and rayon industries), and that they should form a central planning body for the industry composed partly of public and labor representatives; all this with a view to increasing efficiency and preventing "competitive debasement" and "capital redundancy."[18] It remains to be seen whether the planning under the Industrial Organization Act, in its inspiration and execution, ultimately reflects the considerations of socialism or those of private industry.

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[12] Japanese experience with planning in World War II illustrates this point. See T. A. Bisson, *Japan's War Economy* (New York, 1945), pp. 153-156.

[13] This may be something of an oversimplification of the case which perhaps stresses too much the ends of the political spectrum and neglects the intermediate gradations of political opinion.

[14] See the Labor Party's pamphlet, *Let Us Face the Future* (1945).

[15] Irwin M. Tobin, "Nationalization in Great Britain," *Department of State Bulletin*, October 6, 1946, and British Information Services, *Labor and Industry in Britain*, September-October, 1947, p. 162.

[16] For a recent summary of the Act at its Second Reading see *Keesing Contemporary Archives* (London: Keesing's Publications Ltd.), April 26-May 3, 1947, p. 8567; also British Information Services, *Labor and Industry in Britain*, April, 1947, pp. 83-84 and September-October, 1947, p. 162.

[17] See, e.g., Board of Trade, *Working Party Reports, Cotton* (London, 1946).

In one way or another, the same drift toward rationalization is manifest in most other Western European countries. Developments in France afford a striking parallel to those of Britain. The French Government is entertaining legislation to nationalize the steel industry, and parts of the merchant marine and air transport industries. Already under state ownership are certain banks and insurance companies, the famous Renault auto works, the coal mines, gas and electricity production, and some insurance companies.[19] Meanwhile, the private sector of the economy, under the terms of the Monnet Plan, is generally subject to the direction of a hierarchy of planning committees, each consisting of representatives of government, labor, and industry.[20] These committees, relying upon trade associations, or *groupements,* as their operating arm, oversee the rationing of raw materials, the pooling of facilities, the fixing of prices, and so forth. Again, there is no clear indication whether the objectives of the socialist or those of the businessman will prevail.

One can quickly reach the point of diminishing returns in describing developments in each of the Western European countries, for with one variant or another the trend toward industry planning and the curious irresolution as to whose objectives will ultimately prevail is apparent in most of them. Nevertheless, a few added words on Sweden may be justified. A significant indication of the drift of thinking in that country has appeared in a recent report of the Swedish Government's Oil Investigating Committee, published in Swedish in March, 1947. The report contains a systematic analysis of oil distribution in Sweden; it explores the methods of operation of the local Swedish subsidiaries of the great international oil companies, throws some light on the questions of costs and expenses, explores the current status of restrictive agreements in oil distribution, and finally—with two of the five committee members dissenting—recommends the nationalization of oil distribution in Sweden.[21] It is well to observe that in this case the proposed remedy for a case of alleged monopolization was nationalization of the industry involved.

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[18] The ironical aspect of all this is that most British industries have for some years possessed all the paraphernalia for central planning, and have employed such paraphernalia for the planning of prices, production, and quality—with questionable effects upon efficiency; cf. Patrick Fitzgerald, *Industrial Combination in England* (London, 1927); also Ministry of Supply, *Interim Report of the Committee of Investigation into the Cotton Textile Machinery Industry* (London, 1947); and Ministry of Works, *Cement Costs* (London, 1947). The government, therefore, appears to be pinning its hopes of more benign and enlightened planning largely upon an alteration in the composition of the top planning group. The London *Economist* snorts with skepticism at this "solution" saying: "Needless to say, it is not only in private industry that a solution of the problem of monopoly is needed. It is still more needed where the role of a private combine is filled by a national body whose economic powers are backed by legal sanction." *The Economist,* July 12, 1947, p. 55.

[19] See "French Economy Mixed," *New York Times,* March 3, 1947, p. 16.

[20] Decree No. 47-119, *Journal Officiel,* January 17, 1947.

With national planning as the typical motif of most industrialized countries, our government's policies in Western Germany and Japan of preventing cartels and excessive concentrations of industry may seem on first glance to represent a quixotic attempt to swim against a running tide. But this is far from the case. The reasoning behind the policy has been laid out elsewhere in considerable detail, and I shall not attempt a complete summary of it here.[22] I should point out, however, that the policy of dissolving these private restraints on trade and excessive concentrations of industry rests in part upon the conclusion, for which there is ample historical evidence, that such private concentrations are a political and social threat; that because of their capacity to finance and dominate political movements and to create maldistributions of income and wealth in their domestic economies, they destroy essential safeguards against totalitarianism and aggression.[23] On the other hand, United States policy does not bar the possibility of nationalization under certain conditions. Thus, the United States directive to our Military Governor in Germany provides:

> While it is your duty to give the German people an opportunity to learn of the principles and advantages of free enterprise, you will refrain from interfering in the question of public ownership of enterprises in Germany, except to ensure that any choice for or against public ownership is made freely through the normal processes of democratic government. No measure of public ownership shall apply to foreign-owned property unless arrangements which are satisfactory to your Government have been made for the compensation of foreign owners. Pending ultimate decision as to the form and powers of the

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[21] Staten Offentliga Utredningar 1947: 14, Folkhushallnings-departementet, *Handeln med Olja, Betankande Med Forslag Avgivet Av Oljeutredningen 1945* (Stockholm, 1947). (Since the publication of the investigation, there has been no indication that the nationalization scheme is likely to have early implementation.)

[22] See, e.g., Frank, *op. cit.*, pp. 913-918, and Vernon and Wachenheimer, *op. cit.*, pp. 55-64.

[23] In our latter-day recognition of the fact that the role of cartels as weapons of aggression has at times been much exaggerated, it is easy to make too light of their role in that connection; though indirect, their influence can hardly be overlooked. (Cf. Military Tribunals, Case No. 6, *U.S.* vs. *Carl Krauch et al.*, officials of I. G. Farben, Nurnberg, 1947, paras. 50-57; also, Department of State, *Report of the Mission on Japanese Combines* [1946], pp. vii-x.)

central German Government, you will permit no public ownership measure which would reserve that ownership to such central government.[24]

The tenuous outlines of a body of doctrine are beginning to take shape in Western Europe which may yet bridge the gap between the prosocialist thinking of that area and the antitrust policies of the United States. This doctrine, which in particular is commonly expressed in Great Britain and Sweden, runs briefly as follows: The problems of wide-scale nationalization are difficult and the benefits are more remote and indirect than was at first appreciated. Accordingly, it may prove desirable to nationalize only the basic industries of a given country, leaving the bulk of the fabricating and distributing industries in private hands. In the private sector of the economy, however, the public is entitled to safeguards which it has not heretofore had. Some of these safeguards can be obtained by policies insuring the maintenance of competition.[25] This trend of thought must gain much greater currency in Western Europe before it can be counted on as a major trend. Nevertheless, it suggests the lines along which Western Europe may yet develop, once it has bridged the immediate problems of postwar shortages.

As far as Eastern Europe is concerned, the facts regarding nationalization are well known.[26] Yugoslavia, Poland, Czechoslovakia, Rumania, Hungary, and Bulgaria, in particular, have well-advanced plans for socializing the larger part of their respective economies. In a limited measure, nationalization is accomplished in the three latter countries through companies the stock of which is owned jointly by the particular satellite country and Soviet Russia;[27] since the satellite country's control of the enterprise may be open to some question in these situations, perhaps the word "nationalization" is not universally descriptive of the Eastern European trend. At any rate, one can accept the proposition that state trading and government enterprise will characterize this area of the world for the foreseeable future.

Turning from the relatively industrialized areas of Europe to the

[24] Reprinted in *Department of State Bulletin,* July 27, 1947, p. 192.

[25] Cf. "Cement Monopoly Draws Fire from London Press," *World Report,* June 17, 1947, p. 19.

[26] See, e.g., Samuel L. Sharp, *Nationalization of Key Industries in Eastern Europe* (1946); also Leon Goldenberg and Laure Metzger, "Polish Nationalization Law," *Department of State Bulletin,* October 13, 1946, pp. 651-654; Miriam E. Oatman, "Nationalization in Czechoslovakia," *Department of State Bulletin,* December 8, 1946, pp. 1027-1031; "Future of Free Enterprise in World Found Uncertain," *New York Times,* March 3, 1947, p. 1.

[27] One of the ironical aspects of Russian participation in the industry of satellite countries is that such participation is effected through typical capitalistic devices. The enterprise is incorporated and shares are issued to the participating Soviet trust which in many cases also helds the shares of other enterprises engaged elsewhere in the same type of business. Even the familiar practice of channeling the controlled enterprise's banking business to an affiliated bank is employed. See "Soviet Seeks Grip on Hungary Bank," *New York Times,* May 22, 1947, p. 16, and "Rumania's Part in the Molotov Plan," *The Economist,* September 20, 1947, pp. 486-488.

underdeveloped areas of the world, we find trends toward the nationalization of industry which are superficially similar to those of Europe. The plans of the relatively undeveloped countries outside Europe differ somewhat from those of Europe, however, both in motivation and objective. As for motivation, one has to recognize the extreme nationalism of countries which formerly were part of a colonial system. This nationalism has both a political and an economic side; its political aspect is manifested in hostility to the former mother country, while its economic aspect is expressed in an antipathy for foreign-controlled businesses. Economic planners in these underdeveloped countries, in casting about for a group to replace the entrepreneurial and financing function of foreign businessmen, have had little choice—irrespective of their political complexion—but to suggest governmental agencies.

In India, before it underwent its recent partition, the typical attitudes of a former colonial state were expressed in the assumptions and plans of the country's Advisory Planning Board.[28] The Board recommended that the state undertake to nationalize the coal, oil, iron and steel, and transport industries, and that it start a state enterprise in any industry in which the national interest required it and private capital was not forthcoming.[29]

On the question of foreign participation in India's private enterprise, the Board's views are concise and to the point. Its report states:

> In the case of highly specialized industries, it may be necessary, where such a course is found unavoidable in the national interest, to acquiesce in an Agreement of Management which would leave the control of the management in foreign hands for a limited period. In such a case, if participation in capital is made a necessary condition of association, there would be no objection to it provided that effective control is retained in Indian hands. It should, however, be a condition of the Agreement that Indian personnel would be trained for all grades of the industry so that on the termination of the Agreement Indian personnel could take over the entire management including the Technical Direction of the Company. Government should also exercise a general supervision over such Agreements.
>
> Beyond this we are of the opinion that the intrusion of foreign firms in the field of Indian industry should not be allowed. . . .[30]

The Indian situation is fairly representative of a large group of countries. Egypt has long suffered from this postcolonial complex, as has South Africa, Australia, China, and other underdeveloped areas.[31] I think we can accept this widespread attitude as a tangible fact in international economic relations with which we shall have to reckon.

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[28] See *Report of the Advisory Planning Board* (New Delhi, 1947).

[29] *Ibid.*, pp. 16-17.

[30] *Ibid.*, p. 17.

[31] An illustration of this attitude close at home is afforded by Mexican developments. Cf. "Aleman Sets Up Group to Control Investing by Foreigners in Mexico," *New York Times*, June 24, 1947, p. 33; "First Steel Plan Slated for Egypt," *New York Times*, September 18, 1947, p. 37; "Mexican Restrictions on Incoming Capital," *World Report*, July 8, 1947, p. 19.

III

Before I launch into the next phase of this paper, it may be well to sum up what has been said so far. In brief, it appears to me that contractual cartel ties for the time being have been materially relaxed and that the web of international business relations based on corporate stockholdings has been only moderately impaired by the war.

But these are the superficial trends. And things, as Sir William Gilbert has observed, are seldom what they seem. For when one adds to these superficial observations the additional fact that governments in the future are likely to take a far more positive role in business than has been the case in the past, that fact calls for a decided modification of the superficial indications. Indeed, as I propose to indicate in the next few minutes, the more positive role of government in international business may mean that the growth of the international combine will be somewhat slowed and the revival of cartels much accelerated. Let us see how this may come about.

We may begin with some fairly obvious comments on international investment. There is ample evidence that the complex motivations which have been responsible for international investment in past years are still vital factors. Businessmen still are making plans to invest abroad, either to take advantage of higher earnings rates in foreign markets, to obtain cheaper sources of raw materials, to preclude expansion by potential competitors, or because of other familiar economic considerations. But potential international investors, on the whole, are a good deal warier than before the war of the power of governments to impair their foreign investments.[32] Hence, such investors commonly seek to obtain the assurances of foreign governments that their investments will not be imperiled.

Governments, for their part, are insisting in increasing degree upon the right to screen and qualify investments by foreigners within their jurisdiction.[33] But in their screening of the projected investments of foreigners, governments are on the horns of a dilemma. If they accept the investments of foreigners without qualification, the governments run the risk of losing some measure of control over their domestic enterprises and over the program of industrialization of their economies. On the other hand, if they reject or restrict foreign investments, governments may render their programs of industrialization difficult or impossible of achievement. For a flow of investments by foreign enterprises means that a drain on the government's foreign currency holdings may by avoided, to the extent that the foreign investor purchases materials and equipment abroad which is not locally available and ships them into the country. Foreign investment may prove also to be the only available means by which important technology may be secured for local industry.[34] And, finally, foreign investment in processing plants may be a means of securing a tie to raw materials sources—particularly in vertically-integrated industries, such as the oil industry—which otherwise might not be available.

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[32] In addition to the nationalization of industries in Eastern Europe, there have been discriminatory steps of a less drastic nature in many other countries. See, e.g., "Foreign Industry Hobbled in Spain," *New York Times,* July 25, 1947, p. 7; "Future of Free Enterprise in World Found Uncertain," *New York Times,* March 3, 1947, p. 1; "Freeze-Out of Exporters in China," *World Report,* September 9, 1947, p. 24; "Argentina Spending at Dangerous Rate," *World Report,* June 17, 1947, p. 24.

[33] The development of the World Bank to some extent has thrust the screening function upon government. The Bank, of course, requires the guarantee of a borrower's government or central bank before it can make any loans. And few governments can be expected to give such a guarantee without first reviewing the proposed investment for its consistency with governmental objectives.

The dilemma is being met by each government in its own manner, depending in part upon the state of its foreign currency reserves and the measure of its determination to exclude foreign interests. But the sum total of these reactions of government has been to introduce new currents and emphases in the pattern of international investment. To begin with, it has been the writer's observation in viewing the postwar current of international contracts that simple sales of technology purchased for cash have been more common than before the war.[35] Another development has been the insistence of governments that, if foreign interests are to be permitted to invest within its boundaries, such interests must accept the government itself, or one of its agencies, as a co-partner; accordingly, joint government-foreign investor enterprises have sprung up or are being developed in many countries.[36]

Still another variant has been supplied in the telecommunications field. Here, manufacturers of telephone and related equipment have entered into long-range contracts with foreign governments, undertaking to supply technical supervision or assistance to local telephone companies; one of the perquisites of such contracts, of course, is either a specific commitment to, or a marked competitive advantage on the part of, the manufacturer in selling equipment to the foreign operating company.[37]

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[34] Cf. *Rotterdamsche Bankvereeniging*, "Dutch-American Industrial Cooperation," *Quarterly Review*, 1947, No. 1, pp. 22-23. Few combines which have developed a useful line of technology are eager to arm potential foreign competitors by passing that technology on without strings. Accordingly, many enterprises will insist upon a substantial stock interest in any firm to which they pass on their technical secrets, thereby insuring, at the very least, a kind of armed truce as regards competition.

[35] The mushrooming of independent engineering firms and industrial research laboratories in the U.S. in the last ten years and of other independent sources of technology, such as the research institutes of the various universities, suggests that the reservoir from which certain kinds of salable technology may be drawn is growing. See Callie Hull, *Industrial Research Laboratories of the U. S.* (Washington, 1946). But there are limits to the kind of technology which can be drawn from these sources; assembly-line techniques and the like will probably continue to be developed largely by producers, rather than independent researchers.

[36] Cf. "Wage Demands Hamper Mexico in Fight to Produce Petroleum," *World Report*, September 24, 1946, p. 19; and *Keesing Contemporary Archives, op. cit.*, October 19-26, 1946, p. 8200. A variant of this requirement, which was commonly applied before the war but has since grown in importance, is the requirement that nationals of the foreign government in whose jurisdiction the investment is made own a majority of the stock of the new enterprise.

These postwar arrangements, which in many cases replace a simpler prewar combine structure, continue to embody many of the elements of the combine. They leave the way open to joint action in the avoidance of competition on the part of enterprises in which there is a common owner or common manager. Yet, on the whole, the postwar arrangements are not quite as suitable to collusive action as is the private combine. The *rapprochement* between a government, on the one hand, and a foreign enterprise, on the other, cannot be quite so durable as that between two private enterprises. Nor is the medium of long-term technical-aid contracts quite so desirable a means of association as joint participation in the equity of an enterprise. On the whole, therefore, to the extent that the traditional combine structure is being replaced by these alternative arrangements, the machinery for joint action in international markets is being somewhat weakened.[38]

It must not be assumed from the discussion above, however, that government enterprises will be unwilling to associate themselves by contract with restrictive arrangements which reduce international competition; in short, with cartels. Government planning, it is evident, tends to compel the various segments of any domestic industry to act as a unit. And, as many writers on the subject have repeatedly observed, concentration of the control of a domestic industry is virtually a prerequisite to an international cartel. It does not follow, of course, that because state control facilitates an industry's joining an international arrangement, the state will permit it to join. That decision depends on whether the state considers that its interests would be served best by such an arrangement. The special factors which bear on this decision deserve a few words.

One of the principal objectives of private industry when it joins an international cartel is to keep out foreign competition and thereby to secure a monopoly for its home markets. Socialized industry, like private industry, will also be interested in having a domestic monopoly. This interest will arise partly out of the fact that socialist managers, like their capitalist counterparts, measure their performance by the profit and loss statement, and partly out of the fact that the socialist state in the present condition of world affairs will be trying to conserve foreign exchange or to develop home industry for autarchy's sake.

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[37] See "ITT in Spain," *Business Week*, August 3, 1946, p. 98; and "IT&T Subsidiary Sold to Argentina," *New York Times*, September 4, 1946, p. 30.

[38] It is easy to underestimate the resiliency and adaptability of the international combine. For a brilliant analysis of the combine's strategy and strength, see Timberg, *op. cit.* But the changes which the combine will have to make to meet the challenge of government interference could well prove to be so great as to change the nature of the beast.

But if the monopolization of the home markets were the only motivation of the socialist manager, he would not often join an international cartel. For that objective could be attained by a much more direct and enduring means; the socialist manager could simply have his enterprise designated as a monopoly by the state. However, there are other reasons why socialized industry is likely at times to join a cartel. One such reason is the desire to reduce competition in export markets, where the socialist enterprise might otherwise have to do battle with exporters from other countries.[39] And, what is at least as important, socialized industry may be willing to surrender its rights to enter some markets if that is the only basis on which its competitors will agree to swap technology and know-how.

Accordingly, one must conclude that state enterprises may commonly find it possible and desirable to join an international cartel. Their animus in participating in such cartels, it is true, may well differ from that of private enterprises, but there is little reason to suppose that the resulting cartel covenants will be any the less restrictive and harmful of production and trade. Indeed, once a state enterprise is satisfied its interests lie in forming or joining a cartel, there is a real likelihood that the enterprise will pursue its objective more aggressively and will apply its restrictive covenants more ruthlessly than any private enterprise, particularly as such covenants affect the markets of other countries.

On the whole, this sums up to a grim prognosis. If the portents are being properly read, nations will commonly place new barriers in the way of international investment, and their industries may not hesitate to join international cartels. In this forbidding picture, the one major factor to be placed on the other arm of the scales is the proposed International Trade Organization. The Organization represents the most sweeping multilateral effort so far attempted to modify the jungle law which has prevailed in international economic relations. The provisions of the Organization's Charter most relevant to this discussion are contained in Chapter V. According to Chapter V of the Charter, member nations of the Organization would condemn restrictive business practices in international trade whenever such practices have harmful effects, and they would be obliged to take account of the International Trade Organization's findings on that score in particular cases.[40] To be sure the provisions fall short of any unqualified condemnation of restrictive practices since they apply only when such practices also have harmful effects on the expansion of production or trade.[41] But when one compares the declaration of faith in this chapter with the thinking of representatives of the same countries at the World Economic Conference twenty years ago, the triumph of this country's economic diplomats is clear enough. For twenty years ago, the European nations were widely subscribing to the imperfect syllogism that all forms of international collaboration are good; that cartels were a form of international collaboration; *ergo,* that cartels were good.[42]

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[39] Soviet participation in the platinum, sugar and timber cartels in the twenties and thirties probably reflected these motivations. See *NAM Looks at Cartels* (National Association of Manufacturers), November, 1946, pp. 46-57.

[40] *Draft Charter for the International Trade Organization of the United Nations* (Department of State Publication 2927, October, 1947), Ch. V, Art. 44, p. 38.

Government planning and socialization lead to another development which, although not necessarily cartel-like in character, may nevertheless obstruct the channels of trade. Centralized planning for an economy tends to bring about centralized buying and selling. And when a nation which has a significant proportion of the world's supply centralizes its selling, the possibility of seeming discrimination against particular countries or particular enterprises becomes painfully real.[43] For the decisions of a government as to where it will sell a sought-after product tend to be shaped on the basis not only of price and similar commercial considerations, but also of political objectives. Wherever such objectives intrude, the development of economic and political blocs becomes a more readily attainable possibility, while the goal of multilateralism or nondiscriminatory choice, which is the objective of the United States foreign policy, is postponed.

Even when the state planner is buying a product rather than selling one, his decisions tend to take on a pattern which differ from those of the private buyer. The desire on the part of the state planner to obtain an assured source of supply or to cut his administrative task to a minimum or to achieve a political objective, coupled with his monopoly position, may lead him to make commitments which are of such magnitude or duration as to exclude the possibility of competitive offerings for some time to come. Again, the effect is the development of rigidity in the channels of trade and a departure from the objective of multilateralism.

The Proposed Charter of the International Trade Organization reflects an acute awareness of these problems. Chapter IV of the Charter provides that state-trading enterprises shall act in a manner consistent with the general principles of nondiscriminatory treatment which appear elsewhere in the Charter with respect to governmental measures affecting imports or exports by private traders. Moreover, the concept of nondiscriminatory treatment, as it applies to state trading, is defined specifically to include the concept that purchases or sales shall be made solely in accordance with commercial considerations, such as price, quality, and availability. In addition, state trading enterprises are committed to afford the enterprises of the other members adequate opportunity, in accordance with customary business practice, to compete for participation in purchases or sales.[44]

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[41] Cf. *Suggested Charter for an International Trade Organization* (U. S. Department of State Publication 2598, September, 1946), Ch. V, Art. 34, pp. 25-26, which contained an unqualified condemnation of restrictive practices.

[42] *Report and Proceedings of the World Economic Conference* (Geneva: League of Nations, 1927), Vol. I, pp. 49-50, and Vol. II, pp. 127-170.

[43] Two outstanding cases are the international mercury cartel, consisting of government controlled or owned firms in Italy and Spain (E. Hexner, *International Cartels,* 1945, p. 233); and the quinine cartel which is supported by the Dutch Government (*id.,* pp. 336-339; and *U.S.* vs. *N.V. Amsterdamsche Chininefabrik, et al.,* Cr. 54-546, Indictment returned March 30, 1928, in the District Court [S.D.N.Y.], par. 48).

Whether these provisions and the provisions relating to restrictive business practices have a substantial effect upon the pattern of post-war trade depends in a measure upon the virility of the International Trade Organization as a whole. But it depends, above all, upon how quickly and how well the present currency and commodity stringencies of the world are met. For one has to reckon soberly with the possibility that too little aid from the United States tendered too late may compel the European nations to adopt systems of international trade which turn them irresistibly away from the aim of multilateralism. If that should occur, the repercussions on the structure of international business will be so profound as to render the observations of this paper archaic.

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[44] *Draft Charter for the International Trade Organization of the United Nations*, Ch. IV, Sec. D, Art. 30. Among other provisions governing state trading is one which makes markups on the imports of such enterprises subject to negotiation in a manner similar to tariffs.

DISCUSSION

RUFUS S. TUCKER: Mr. Houghton's paper contains many statements with which I disagree, but because of limited time I shall concentrate on two main ideas.

First, Mr. Houghton is obsessed with the idea that fewness of producers in an industry is *ipso facto* proof that competition does not operate. In my opinion the number of producers of any article, or defined group of articles, has very little bearing on the question of effective competition. A prize fight, with only two participants, is every bit as competitive as a track meet with forty or fifty. If there were only two producers and they sold their products without collusion in every market place, there would be effective competition. But if there were forty-eight, and each one, because of transportation costs or state regulations, sold in only one state, there would be, not competition, but forty-eight local monopolies. The question is not how many producers there may be in any particular industry but how many choices does the consumer have among sources of supply for articles gratifying similar wants. From that point of view competition was more effective and more nearly universal in 1941 than ever before in our history, except in the field of labor where monopolies were firmly entrenched. And since OPA was abolished competition has again become effective, except in the field of labor.

You may have noticed that I spoke of a defined group of articles. That was because if you multiply your number of groups and narrow your definitions enough you can make a monopolist out of any producer. For example, General Motors has a monopoly of Chevrolets. It does not have a monopoly of automobiles, nor of moderate-priced passenger cars. It does not even, I hesitate to admit, have a monopoly of good cars.

Mr. Houghton has suggested that the relatively fixed proportion of automobiles produced by the top few producers is evidence of lack of competition. But the relevant question is not how much of the total output the top three or four produce but the proportion that each producer produces. Actually that has varied widely. Ford started with 50 per cent at the end of World War I, got down to 15 per cent in 1927, rose to 30 per cent in 1935 and fell to 19 per cent in 1941. General Motors rose from 19 per cent in 1924 to 42 per cent in 1927, fell to 33 per cent in 1929 and rose to 47 per cent in 1940. Chrysler started with 2 per cent in 1922, rose to 26 per cent in 1933, and has fluctuated since between 22 and 26 per cent. The smaller corporations were down to 8.5 per cent in 1935 and are now up to 15.4 per cent. The automobile industry, moreover, aside from the statistics, has proved itself to be one of the most competitive and therefore one of the most efficient of all industries.

The second main weakness of Mr. Houghton's paper derives from the fact that he has accepted the figures compiled by Gardiner Means as proving a growth in concentration between 1909 and 1924. Without these figures the available statistics show little evidence of increasing concentration. I have published two articles describing the fallacies of Mr. Means's methods,[1] but you may not all have read them, so I will repeat briefly the main point. Mr. Means stated that between 1909 and 1924 the gross assets of the two hundred largest nonfinancial corporations grew at the average rate of 5 per cent per year. My own studies indicate that that figure was about right if the corporations' own statements can be trusted. An unknown amount of water was included in both years. Possibly the actual growth was greater than 5 per cent. But for comparison with that growth he stated that the wealth of *all* corporations grew at the average rate of only 3.3 per cent per year. This figure was obtained, not from a compilation of gross assets, but from a comparison of the *par* value of stocks in 1909, plus corporate indebtedness, with the "fair" value of stocks in 1924, plus corporate indebtedness. The par value used in 1909 included a large amount of water. The "fair" value used in 1924 included no water, since the figure used had been dehydrated by the Federal Trade Commission. Consequently the 3.3 per cent rate of growth must have been too small. For this comparison it is absolutely irrelevant whether the accounts of large corporations contained more or less water than those of small corporations, since the water was not squeezed out of the figure used for large corporations, but was squeezed out of the figure used for all corporations, at the later date.

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[1] "Concentration and Competition," *Journal of Marketing*, April, 1940; "Increasing Concentration of Business Not Supported by Statistical Evidence," *The Annalist*, July 31, 1936.

During this period the assets of all corporations must have increased much more than 3.3 per cent per year. It is universally held by students of this subject that corporations were obtaining a larger share of the nation's business and of its wealth and income in those fifteen years. But the nation's wealth (according to the National Industrial Conference Board figures) was increasing at the rate of 5.1 per cent per year; the national income at the rate of 6.5 to 6.6 per cent per year, the net income of corporations at the rate of 5.1 per cent per year. Even the price level increased at the rate of 3.9 per cent, which was faster than Means's estimate of corporate growth. The gross assets of *all* corporations must have increased at least as fast as 5.1 per cent per year. In other words there is no evidence that corporation in general did not grow as fast as the two hundred largest corporations from 1909 to 1924.

In 1925, 1926, and from 1928 to 1931 the large corporations did grow faster than the others. That was because of the stock market inflation until 1929, and because their greater reserves and higher credit standing saved them from as much writing down of capital or involuntary liquidation and bankruptcy after 1929. But the figures cited by Mr. Houghton and presented in the report of the Smaller War Plants Corporation give no indication of any tendency toward increased concentration since 1932. We are justified in concluding, therefore, that the increase in concentration of corporate wealth is not a continuing tendency, inherent in the nature of modern economic organization and requiring drastic action to overcome, if it ought to be overcome. The two great movements toward concentration, 1897-1903 and 1927-29, both occurred as a result of stock market speculation, based on the easy availability of bank credit for speculators, and after each of those booms many of the newly inflated giant corporations shrank down to normal size or in some cases broke up.

I might question the figures that have been presented for the amount of the assets of large corporations in 1929 and the amount of the assets of all corporations with which they have been compared. If time permitted I might expatiate on the unnecessary confusion and needless alarm caused by lumping industrials, railroads, and public utilities into one group labeled nonfinancial. A study of separate industries is essential for understanding the problem, and such a study would probably show that the industries characterized by large corporations are mainly those that for technological reasons require large-scale operations to obtain efficiency and low costs.

I can only conclude with the observation that I have more faith in the competitive process and the strength of individual enterprise than Mr. Houghton does. I cannot believe on the one hand that if private fraud and coercion are prevented and on the other hand governmental subsidies and misguided controls and deterrents to investment are avoided, industry will become dominated by monopolies, or large corporations will be able to maintain themselves at a size greater than is consistent with economical production and maximum service to the community.

GEORGE W. STOCKING: In my judgment both Mr. Vernon and Mr. Houghton have in general correctly interpreted recent trends in the control of industry. The socialization of much of industry in most of the industrially advanced countries of the world, increased governmental control of investment in the industrially backward areas, and the acceleration of the merger movement at home forecast rough sailing for free enterprise.

Unfortunately, although the trend that Mr. Vernon has described has been given a powerful impulse by the disturbances growing out of World War II, it has its roots in more remote and enduring forces. Continental Europe, particularly Germany, was never subjected fully to the discipline of Adam Smith's obvious and simple system of natural liberty. Moreover, English businessmen, although nourished in its tradition, lost faith in free enterprise when newcomers from America and Germany gave them a run for their money in the first quarter of this century. Confronted by a contracting world economy, with the coming of the Great Depression they threw free enterprise overboard. How completely they had abandoned free competition is indicated by the Düsseldorf Agreement which they made with German industrialists on the eve of World War II. Düsseldorf was a sort of master plan under which German and English businessmen proposed to cartelize world trade, industry by industry. While the war wrecked their plans, it did not kill their spirit. As Mr. Vernon has made clear, English businessmen are as enthusiastic planners for a centrally controlled economy as are British socialists—for whose rise to power indeed the businessmen paved the way. While it is not yet clear who will eventually exercise the controls in England, that they will be centrally guided is evident.

We have not preserved competition very effectively by our lackadaisical enforcement of antitrust legislation at home. We are unlikely to establish it on an enduring basis in feudal Japan and neo-mercantilistic Germany. Since the alternatives are unattractive, it is worth while trying, but one need not be over sanguine about the results. Eventually either private cartels or the government is likely to control basic industries in both countries. As for the rest of Europe, Mr. Vernon's description is adequate. The drift towards centralization of control is certain. Whether businessmen or politicians will exercise the power is not yet clear.

Although South and Central American governments are opposed to Yankee control of industry, they are not hostile to a centralized control. South American governments have not hesitated to approve cartels, provided they share in them. They have opposed Yankee exploitation more than exploitation per se. The oil industry illustrates the point. Argentina, for example, has established a compulsory cartel to regulate the production, refining, and sale of petroleum products. A government company is the dominant member of the cartel. It operates like any other cartel—on the principle of sabotage; that is, restriction of output and control of prices.

The rest of the world, particularly India and China, is in such a state of confusion that it would be reckless to prophesy the particular pattern into which the control of industry will fall. That it will not be free enterprise is a fairly safe guess.

I think Mr. Vernon has shown commendable caution in evaluating the promise of the International Trade Organization in preventing or eliminating restrictive cartel practices. In obtaining acceptance of its principles of freeing trade from harmful restrictive controls, the State Department has probably done about as well as anyone could. But this is a case of the best being none too good. And when we take account of the exceptions that the State Department's program makes for government-sponsored commodity control schemes —which are cartels in all but name—we find the world outlook for free enterprise even less rosy. If producers of raw materials are to be permitted to make international agreements restricting output and maintaining prices, the State Department has done well to circumscribe such agreements with rules designed to limit their number, shorten their life, and prevent their exploiting the consumer. If it achieves these ends it will have done even better. The importance of its trying to do so is reflected in the fact that before World War II cartels regulating mineral and agricultural products greatly overshadowed those controlling manufactured goods. A Twentieth Century Fund study, now in the press, estimated that in 1939 only 42.7 per cent (by value) of the manufactured products sold in the United States were products for the international marketing of which cartels had been established; whereas 47.4 per cent of the agricultural products and 87.1 per cent of the mineral products were cartel controlled.[1]

Unless we can reverse the trend toward concentration of control of business in international markets, we will find it difficult to maintain free enterprise in domestic markets. If American business in its foreign trade is to buy from and sell to government monopolies or compete with private cartels, it will insist on further relief from our antitrust laws. If world trade is to be socialized or cartelized, Congress is likely to broaden the exemptions granted Ameri-

[1] George W. Stocking and Myron W. Watkins, *Cartels or Competition* (New York: Twentieth Century Fund, 1948), p. 93.

can businessmen under the Webb-Pomerene Act. And if businessmen collaborate in selling in world markets, they are unlikely to compete in selling in domestic markets.

But, as Mr. Houghton has indicated, the threat to free enterprise is internal as well as external. Some critics have questioned the validity of the statistical data that Mr. Houghton has cited as a measure of the postwar trend towards concentration of control. Both Shaw Livermore and Rufus Tucker, for example, pointed out as early as 1940 that the data of the National Resources Committee on the two hundred largest corporations are misleading because they include public utilities and transportation companies. Mr. Livermore, by excluding these groups, came to the interesting conclusion that "aside from nursing to gianthood of about fifty large utility concerns, we have witnessed no change in the degree of concentration of control in this country since 1890";[2] and Mr. Tucker stated categorically that "concentration in industry has not decreased competition."[3]

Although I believe that aggregates may be very misleading in passing judgment on the extent of competition in American markets, I find Mr. Houghton's interpretation more convincing than that of his critics. It is true, of course, that before World War II some sections of the American economy remained relatively free from monopoly controls. I think no one would question that competition was reasonably effective in women's apparel, men's clothing, furniture, house furnishings, cotton manufacture, and a score of other industries in which the number of producers was relatively large, access to the industry easy, and business mortality high. But just as surely no economist can question that the consolidation movement of 1897-1903 reduced greatly the number of sellers in many areas of American industry. And only a few economists—Mr. Tucker among them—would question that in doing so it changed greatly the behavior of the market. While the merger movement of the twenties was less spectacular than the earlier movement, it also reduced the number of sellers in specific areas and increased the power of dominant firms. For example, three copper companies—Anaconda, Phelps Dodge, and Kennicott—produced only about 26 per cent of the domestic copper in 1920. Largely by absorbing rivals during the next two decades, they increased their percentage of domestic output to about 83.

Mr. Houghton has cited TNEC data showing a high degree of concentration of control in important sectors of the prewar American economy. As he stated, in 1937 four producers accounted for from 75 to 100 per cent of the value of the product turned out by industries producing one-third of the value of all manufactured products. It would be a safe guess that in nearly every case the four dominant firms achieved their position by combining business rivals.

American society is highly dynamic and control of industry is continually shifting. Technological progress, population growth, changes in national income and its distribution, and shifting consumer tastes, have made it difficult for monopolies or near monopolies to retain their control of the market. As monopoly power has grown in some areas, it has disintegrated in others. Standard Oil, U. S. Steel, American Sugar Refining, American Tobacco, Corn Products Refining Company have lost ground. But Dow Chemical's control of magnesium, Bausch & Lomb's control of precision instruments, United Shoe Machinery's, International Nickel's, Climax Molybdenum's and Alcoa's control of their respective markets before World War II remained unimpaired.

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[2] Shaw Livermore, "Concentration of Control Now as Compared with 1890," *Journal of Marketing*, April, 1940, pp. 362-369.

[3] Rufus S. Tucker, "Concentration and Competition," *Journal of Marketing*, April, 1940, p. 360.

World War II with its tremendous expansion of industrial capacity changed the picture greatly in some industries, and the postwar expansion in the demand for consumer goods in some cases has accentuated changes which the war inaugurated. I think Mr. Houghton has taken inadequate account of the significance of these developments to competition in certain fields. The number of sellers has increased in aluminum, in automobiles, in magnesium, in synthetic nitrogen, and in electrical appliances. But in most of these fields a few sellers seem likely to dominate their postwar markets. And as Mr. Houghton has indicated, the postwar period has brought important counter developments. A merger movement comparable to that of the twenties is underway. How far it will go is not yet clear but in evaluating the movement it is important to remember that mergers may threaten free enterprise even if they do not create monopolies. They do so whenever they reduce significantly the number of firms. Barring collusion among business rivals, fewness of sellers in a market need not always lead to sabotage, as the theorists of imperfect competition have implied, but it may make collusion so easy and so difficult to detect that sellers may enjoy the fruits of conspiracy without being subject to its legal penalties.

The real threat to free enterprise is the lack of confidence that businessmen have in it and their willingness to abandon it when the going gets rough. In a sellers market such as we are now experiencing, all business groups favor free private enterprise. In a buyers market, they are apt to remain loyal only to private enterprise. If we may judge from precedents, when the depression comes, control schemes will spring up all around the place. It is during such a period that the fruits of the merger movement will ripen. We may look forward to a renewal of trade association activities to stabilize markets. As the merger movement reduces the number of sellers, it enhances the effectiveness of trade associations. It may enable them to stabilize markets without violating antitrust laws. By compiling, disseminating, and interpreting trade information, a trade association may supply its members with the knowledge essential to a rational control of output and price that will enable producers to maximize their earnings. When few sellers dominate a market they may develop the self-discipline to use such knowledge effectively. And if perchance they should run afoul of the antitrust laws, if we may judge the future by the past, economists will come to their defense and testify that the market's behavior is consistent with independent noncollusive decision-making by trade rivals.

Certainly free enterprise is under attack from without. If it is betrayed from within, it may find tough going. It is not necessarily headed for a knockout, but such is apt to be its fate unless those who stand most to gain from its survival come to its rescue.

Horace M. Gray: Mr. Houghton has presented a carefully documented survey of recent trends in the growth of big business in the United States. He has assembled the latest and most authoritative data on the subject—such as the reports of the Temporary National Economic Committee, National Resources Committee, Twentieth Century Fund, Federal Trade Commission, Smaller War Plants Corporation, War Assets Administration and the House and Senate Committees on Small Business—and, in analyzing them, has exercised sound judgment in assaying their limitations and their significance. On balance, he concludes that the prewar trend toward economic concentration has continued through the war and postwar years, and that today the degree of concentration is greater than ever before.

In my judgment Mr. Houghton has fully substantiated his thesis by marshalling the known facts. His conclusion conforms to that of other investigators, both private and public, who have explored this field. The record is an impressive one but, as Mr. Houghton recognizes, the method employed and the character of the data at his disposal probably tend to understate the real situation and to minimize the significance of recent developments. Mr. Houghton's assignment was to measure the "Growth of Big Business"; he has done so in quantitative terms, such as the number of mergers, size of firms, percentage of assets and output controlled, and percentage of industrial workers employed. Such measurements, however, take no account of the qualitative factors involved—in this instance, principally the uses and social consequences of this concentrated economic power. Supplementary inquiries in this direction would be essential for a complete appraisal of the role of big business in the American economy.

This point is raised, not in criticism of Mr. Houghton's excellent paper, for such inquiries obviously extend beyond the limits of his assignment, but to emphasize the need for research in the institutional sources of concentrated economic power and in the social consequences of such concentration. During recent years the refinement of quantitative measurements has all too frequently trailed off into fruitless debate over statistical method, or acrimonious dispute as to the causes, extent, and effects of concentration. In the meantime, as Mr. Houghton has shown, the process of concentration continues unabated; while the experts quibble over statistical details, the practitioners of monopoly ply their trade unmolested.

The basic question, as I take it, is one of social choice on the part of a free people respecting economic organization. Do we want a competitive economy or a predominately monopolistic one? If we really want a competitive economy, and are seriously concerned to eradicate monopoly, then we should address our attention to those institutions the operation of which is determinative as between the two types of economic organization. For too long we have engaged in desultory debate as to what should be done about already concentrated economic power; it is high time we concerned ourselves with discovering the institutional origins of such concentration and, having done this, with institutional modifications calculated to prevent further, and to reduce existing, concentration. Only by this approach can we arrest the present trend toward increasing monopolization and set the economy on a new, and more desirable, course.

Mr. Houghton touches briefly on some of these institutional factors but does not analyze them fully. Partly by implication, partly by explicit demonstration, he indicates that the federal government, as a result of its war and postwar policy, bears a grave responsibility for acceleration of the concentration movement. Its policies with respect to allocation of war contracts, disposal of war plants, patents, and taxation—to mention only some of the principal ones—have contributed significantly in this direction. If these, and all other sins of commission and omission, were brought under critical scrutiny it would appear, I am certain, that the most important single factor contributing to the recent growth of concentration has been the derelictions of the federal government. In short, our political and economic institutions at the federal level have been so mismanaged as to make this result inevitable.

There is no visible connection between the state of affairs portrayed by Mr. Houghton and Mr. Vernon's speculations concerning the shape of things to come in the international sphere. This is typical of the conceptual dichotomy so characteristic of American economic thought by which we isolate domestic from international events and thus obscure the causal relations between the two. According to this view, a highly concentrated, largely monopolistic American economy has no necessary repercussions on the war-shattered, disorganized economies of other nations, and no determinative consequences with respect to the pattern of postwar international economic organization. On this premise, we can, with perfect consistency, practice monopoly at home while preaching free enterprise and competitive multilateral trading abroad.

Even if we refuse to recognize any causal connection between domestic and international policy, this lesson is not lost on other peoples. Everywhere the overweening power of monopoly capitalism in the United States is recognized as one of the most important determinative factors in the world situation. Its aggressive outward thrust places the economies and the institutions of weaker nations in jeopardy and they react violently against the threat of American domination. Its equally aggressive domestic policies create a condition of economic and social instability at home, which in turn generates fear and distrust abroad. Notwithstanding our repeated assurances and professions of good intentions, this fear persists; it will continue because it stems from a deep-seated distrust of our economic system and the profound conviction that our economic behavior abroad is determined by the prevailing concentration of economic power at home.

A careful reading of Mr. Vernon's paper reveals that he has some serious misgivings on this score. He seems to sense, in a certain vague, uneasy way, that American monopoly capitalism may actually influence the pattern of postwar international economic organization, but his views are not made explicit. He suggests that the prewar cartel system, centered in Germany, may be revised; that property-owning combines have survived the war and that this form of international organization may be extended; that deconcentration in Germany and Japan may not be carried out; that private international agreements may be renewed; that certain countries, in order to secure capital and technology from the United States, may be compelled to modify their domestic policies to conform to American ideas; that the United States, while not using its power to prevent socialization, does attempt to restrict and retard this process. In each instance it is implicitly obvious that the final determinant is American big business, for what other force is there in the world today which has the requisite power and the compelling desire to build a postwar world economy on the principle of private monopoly? Clearly, if we are to have such a world economy it can under present conditions be fashioned only by American big business with the active support of the federal government.

In his anxiety to reconcile American monopolistic thought with Western European socialist thought Mr. Vernon falls into a curious, and in my judgment quite unpardonable, error. Looking at the external structure of socialist state enterprise and observing the behavior of such institutions under desperate postwar conditions, he arrives at the novel conclusion that they are essentially the same as private cartels in the sense that they conform to the same mode of economic behavior. Going farther, he affirms that socialist state enterprise may actually be more aggressive and more restrictive in its operations and policies than private cartels; that it may actively sponsor and participate in cartels in order to suppress competition. He sees no clear-cut demarcation between socialist and business planning, and thinks the wavering balance between the two may swing either way without any material difference in results. He emphasizes this "curious irresolution as to whose objectives will ultimately prevail" by pointing to the hestitation, delays, and confusion which have characterized socialist planning in Western Europe since the war. From the identity thus established between socialist state enterprise and private monopoly he derives the conclusion that socialization in Western Europe may constitute a bridge, or common meeting ground, between European and American thought.

This conclusion may yield some comfort to our harassed State Department officials, who are trying to ride a capitalistic horse in a predominately socialistic circus, and to some of our more sophisticated monopolists, who, unable to prevent socialization, would capture it for their own uses; but it will not be acceptable either to students of socialism or to students of private monopoly. There is, in my judgment, no convincing evidence to support the alleged identity of socialist state enterprise and private monopoly. While under certain conditions the two might assume similar external form, and while it is true that in times of national crisis they might follow similar economic policies, nevertheless they differ fundamentally in purpose, motivation, and political orientation. Socialist state enterprise rests on a mass democratic political base; it strives for full production, low costs, and maximum service to its constituency. Private monopoly, on the contrary, is a perversion of democracy achieved by manipulation of imperfect democratic institutions; it strives for maximum profits through restriction of output, control of markets, and the maintenance of excessive and discriminatory prices.

Because of these fundamental differences the two forms of economic organization are, and must remain, incompatible. The only situation under which I can visualize them as merging or reaching some common identity, as Mr. Vernon suggests, is where state enterprise ceases to be socialist; that is, it abandons its socialist purpose and orientation, and undertakes to serve the interests of some dominant group or ruling class within a society. Thus, retaining its original form, its purpose and, as a consequence, its policies would be redirected toward some nonsocialist objective. This, as I read the history of Europe between the two World Wars, was what happened under Fascism. State enterprises of socialist character and private monopolies were brought under a common leadership and directed toward ends that by no stretch of the imagination can be regarded as socialist. This unification of public and private power, which was the essence of Fascism, is by no means a dead issue in the world today despite the crushing defeat of the Fascist powers. Whether it will be revived in Western Europe, in some modified and less virulent form, cannot now be predicted. We can be reasonably sure, however, that it cannot and will not be revived without the positive and aggressive sponsorship of the United States. Furthermore, if we allow the foreign economic policy of the United States to be dictated by monopolists, the revival of Fascism in Western Europe is almost a certainty.

VERNON A. MUND: Mr. Houghton's paper, in my opinion, presents an excellent factual study of the growth of big business in the United States. His report indicates very clearly that we are getting deeper and deeper into the lion's mouth from which there may be no retreat. At the same time his careful analysis of the ways in which business has become big should dispel any remaining thought that industrial combinations are a product of modern technology and mass production. Economic concentration, his study indicates, is a result of human actions and designs made possible by an ineffective social control and a series of court decisions which have crippled the antitrust laws.

The historical survey of the concepts of monopoly and competition made by Mr. Houghton leads him to ask "whether competition ever was 'free' in the first place." In considering this question, my thought is that a distinction should be made between "competition" or "free competition" and "price competition." Adam Smith and his contemporaries in France, in their attack on the mercantile system, were concerned with the attainment or realization of free competition. This phrase to them had the meaning of free enterprise—the freedom of every man to enter or pursue any lawful business of his own choice without coercion or exclusion. With the abolition of the mercantile system, the right to compete became widely enjoyed, and in the United States it became a basic American institution.

While we hear a lot about free enterprise today, the actual facts indicate that the right to enter a business, or to operate a business as an independent, has been largely restrained in many fields by the growth of mergers and the use of discriminatory pricing. The need for a freedom of enterprise or a freedom of competition is truly as great today as it was at the time of Adam Smith.

In addition to the maintenance of free competition, public policy in various historical periods has sought to create or secure price competition among buyers as well as sellers. In the ancient world of Greece and Rome the authorities created public markets for the purchase and sale of goods; and during the medieval period in Western Europe (from about 800 to 1500) the practice was to concentrate all commerce in open markets for the purpose of developing fair and equitable prices. The subsequent rise of monopolistic guilds and trading companies and the enactment of mercantile privileges brought the medieval market economy to a close and also put legal restraints on free enterprise or competition.

The historical data which Mr. Houghton briefly sketches, in my opinion, show that freedom of competition and price competition have prevailed in an effective way for considerable periods of time in the historical past. At the same time, the data show that these basic economic institutions have been as effectively restrained in the past as they are today. The industrial combinations in the United States, in fact, are strikingly similar in their monopolistic nature to the guilds and exclusive companies which dominated industry and commerce in Western Europe at the time of Adam Smith. The important lesson which I would draw from the historical material is that freedom of competition and price competition are not self-realizing institutions, but rather that they must be created and maintained by public authority. If this is so, the important task of the future is to supplement continuing studies of concentration with studies on how to create competitive institutions by public action.

In his paper, Mr. Vernon has presented a comprehensive analysis of significant organizational changes in process and in prospect. I share with Mr. Vernon doubt and skepticism about the wisdom of the policy of the British Labor Government, as expressed in the Industrial Organization Act, in legalizing and encouraging the formation of cartels in British industry. How can this policy be explained? Is it that the Laborites think that they see farther ahead than big business, and that with continued increases in monopoly control they believe that ultimate socialization can be more easily attained? Mr. Vernon concludes that in the economies of Western Europe "there is no clear indication whether the objectives of the socialist or those of the businessman will control." My own thought is that in fostering private monopoly, England and France in particular are creating a condition in which it will be exceedingly difficult, if not impossible, to "expropriate the expropriators." If cartels and combines are allowed to consolidate and strengthen their gains, may it not be that plutocracy rather than socialism will be the logical successor?

Although the present trend in Western Europe is one of continued industrial centralization, Mr. Vernon suggests that the policy of competition may yet survive. There is a measure of support for it to be found in England. Free enterprise and price competition, moreover, are the declared policies of our government for the reconstruction of the German and Japanese economies.

These are elements of strength. The next step is to implement this policy. There are reports that certain groups of businessmen in the United States, as well as in Germany, are succeeding in a degree in preventing the rapid and vigorous carrying out of our official policy. Is this the case? From the vantage point which Mr. Vernon has I should like to ask him what interest group, or groups, at home and abroad, can be enlisted to aid in making our official policy more effective?

In his carefully reasoned analysis, Mr. Vernon concludes that foreign nations can be expected to place new barriers in the way of international investment; and that increasingly their industries—state enterprises as well as privately-owned ones—are likely to join or participate in international cartels. It accordingly appears that we are going to have to live with state trading and with producer controls at the international level. Mr. Vernon correctly finds, in my opinion, that our hope in this situation is to strengthen the International Trade Organization. At the same time, I suggest that the attainment of multilateralism in commerce, the further reduction of tariff barriers, and the resumption of private investment abroad will also require (1) national effort by all countries to increase productivity and to conserve spending power, and (2) a solution for the problem of monopoly and economic concentration in our own country. A growing number of economists are emphasizing that industrial monopolies, by contributing "stability" to prices, aggravate and prolong periods of depression and unemployment. A prolonged depression in the United States quite likely would force foreign nations into bilateral pacts regardless of the removal of tariff barriers or the work of the International Trade Organization. However, if sustained employment can be secured in the United States, and if our country can be made a great importer and exporter of the world's commodities, there is reason to believe that multilateralism will prevail, and that foreign nations increasingly may turn from restrictionism to the creation of competitive institutions. In viewing trends in international business organization, therefore, we must also consider trends at home.

DOES LARGE-SCALE ENTERPRISE RESULT IN LOWER COSTS?

TECHNOLOGY AND SIZE

By John M. Blair
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The whole subject of the comparative efficiency of different sizes of business has long raised one of the most perplexing dilemmas in the entire body of economic theory—a dilemma which has moved even the most reserved of British economists to describe it in such terms as "vexatious" or the "dilemma which has given rise to all this pother."[1] On several occasions during the last century this dilemma has been "resolved" by recourse to vague theoretical assumptions, only to reappear again when the assumptions were challenged and discarded.

Considering its key importance to the theory of competition, as well as to legislative enactments and judicial interpretations, it is a matter of amazement that so little effort has been directed toward examining this fundamental problem in the light of factual data. It would seem that the sparks set off by all of the theoretical fireworks would have kindled numerous empirical investigations. Yet, for some inexplicable reason, such has not been the case. The explorer in this field stands, indeed, on barren ground.

But a beginning must be made sometime in tackling this whole size-efficiency problem on an empirical basis. The first step in any such undertaking would logically be that of studying the underlying technological forces of the economy, since it is technology which largely determines the relationship between the size of plant and efficiency. This paper will therefore be devoted largely to this first step—the analysis of the impact of technology upon size and efficiency.

But while this subject of technological change is perhaps the most fundamental aspect of the whole size-efficiency question, it is also the most difficult of analysis. Although technological changes occasionally burst upon the world almost overnight, more often they occur so gradually and slowly as to defy discernment and analysis. The problem of interpretation is further complicated by the fact that many aspects of technology simply do not lend themselves to statistical treatment. For example, with what available statistical data can we measure the impact of the substitution of plastics for metal? Yet, while we cannot measure the changes, we can gain some insight into their general character and significance through descriptive analysis—which must therefore be the form in which most of the factual material in this paper is presented.

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[1] Different aspects of this theoretical problem are discussed in the following articles: J. H. Clapham, "On Empty Economic Boxes," *Economic Journal,* September, 1922, p. 305; A. C. Pigou, "Empty Economic Boxes, a Reply," *Economic Journal,* December, 1922, p. 458; D. H. Robertson, "Those Empty Boxes," *Economic Journal,* January, 1924, p. 16; Piero Sraffa, "The Laws of Returns under Competitive Conditions," *Economic Journal,* December, 1926, p. 535; A. C. Pigou, "The Laws of Diminishing and Increasing Cost," *Economic Journal,* June, 1927, p. 188; G. F. Shove, "Varying Costs and Marginal Net Products," *Economic Journal,* June, 1928, p. 258; Lionel Robbins, "The Representative Firm," *Economic Journal,* September, 1928, p. 387; Allyn Young, "Increasing Returns and Economic Progress," *Economic Journal,* December, 1928, p. 527; D. H. Robertson, Piero Sraffa, and G. F. Shove, "Increasing Returns and the Representative Firm: A Symposium," *Economic Journal,* March, 1930, pp. 79-116.

The paper is divided into four parts, the first of which consists of a brief summary of the traditional theoretical dilemma raised by this size-efficiency question; the second, a brief descriptive analysis of the impetus given by technology to large-scale operations, particularly during the nineteenth century; third, a descriptive analysis of certain new "capital-saving" or "decentralizing" techniques whose effects on size are just the reverse of the nineteenth century technology; and fourth, an examination, based upon the available statistical data, of the relative efficiency of large, plural-unit corporations as compared with independently-owned, single-unit enterprises.

1. *Economic Theory and the Problem of Size.* The traditional dilemma of this size-efficiency question is concerned with the compatibility of competition with increasing size. It will be recalled that in increasing returns industries,[2] the economies of greater size could stem either from the expansion of an industry as a whole—in which case they were regarded as "external" economies, or they could result from an expansion by an individual firm while the industry as a whole remained constant—in which case the gains were termed "internal" economies.

Briefly, the problem was this: What was there to prevent a given firm in an increasing returns industry from steadily increasing its size through the operation of internal economies until it had achieved a monopolistic position? This problem was not raised by the operation of external economies, since any expansion of an industry as a whole would, presumably, result in an expansion of each of its members, thus involving no major change in the relative size distribution of the industry. But, in the case of internal economies, there was apparently nothing to prevent a given company from increasing its size (at the expense of the remainder of the industry), thereby achieving greater economies, increasing its size again, and thus achieving still greater economies, and so on ad infinitum until it had monopolized the industry. Professor D. H. Robertson summarized the dilemma as follows: "The root difficulty about increasing returns has always been to understand how, where they prevail, equilibrium can exist without the whole supply of the commodity in question becoming concentrated in the hands of one producer."[3]

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[2] Economic inquiry came to be focused more and more on the increasing returns industries rather than on the decreasing or constant returns industries. The former were gradually dismissed as being few in number and the latter as a mathematical abstraction. Even the use of coal mining as one of the few illustrations of a decreasing returns industry was questioned after the introduction of mechanized mining methods. The relationship of constant returns industries to the actual world was even more tenuous. In the words of Professor J. H. Clapham: "Constant returns, it may be observed in passing, must always remain a mathematical point. . . . It is inconceivable that a method can ever be devised for so measuring these real but infinitely subtle tendencies toward diminishing and increasing returns that someone will be able to say, Lo, here a perfect balance. If this is so, constant returns industries may be relegated finally to the limbo of the categories, in company for the present with such still disembodied phantoms as the 'commodity whose elasticity of demand is unity.'" (J. H. Clapham, "On Empty Economic Boxes," *Economic Journal,* September, 1922, p. 310.)

The answer which for many years was considered adequate was that supplied by Alfred Marshall in his theory of the "representative" firm. Marshall held, first, that the growth of a firm cannot continue indefinitely because the abilities and energies of the entrepreneur (or of his heirs) are likely to decay after a certain time (a sort of sociological law with Marshall); second, that in many industries large-scale economies are counteracted by the difficulty of enlarging the firm's market; and third, that there is "on the whole, a broad movement from below upward." Ability always finds the necessary capital, etc.[4]

Between the economies of large-scale operations on the one hand and the difficulty of expanding the firm's market on the other was Marshall's "representative" firm—a firm which had not reached the age or size that is susceptible to the "decay of faculties" but is able to use large-scale economies up to that point where they begin to diminish in intensity owing to the increasing difficulty in marketing.

Unfortunately, but perhaps with his customary acute foresight, Marshall was exceedingly vague in presenting any further descriptive details concerning the representative firm. We learn merely that it is neither a young, growing firm nor a decaying firm; it is not a firm of unusually large size or with unusual advantages; the "normal" economies which can be obtained in an industry are open to firms which are of representative size; and the representative firm tends to increase in size as the industry as a whole expands. Somewhere between these different sets of polar extremities the representative firm is to be found. But where? Many years later Professor A. C. Pigou, in trying to make clear what Marshall had in mind, delivered himself of the not-too-helpful generalization that Marshall's representative firm is meant to be "a firm of, in some sense, average size . . . a typical firm, built on a scale to which actual firms tend to approximate, and that there is good evidence that this conception is appropriate to actual conditions."[5]

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[3] D. H. Robertson, "Increasing Returns and the Representative Firm," *Economic Journal*, March, 1930, pp. 84, 87.

[4] For a summary and criticism of Marshall's position see Joseph Steindl, *Small and Big Business* (Oxford: Basil, Blackwell and Mott, Ltd., 1945), pp. 1-12.

Quite apart from the practical difficulty of identifying or locating the representative firm, Marshall's theory is subject to criticism on several other grounds, as has recently been pointed out by Joseph Steindl.[6]

In the first place, the death of big firms owing to the "decay of entrepreneurial faculties" is a far slower process than had been imagined by Marshall—if, in fact, it takes place at all. For example, is it possible to point to more than a handful of isolated examples of large American firms which have suffered a serious loss in position during the last thirty years because of the "decay of entrepreneurial faculties"? Second, there is little in the available evidence to suggest the existence of "a broad movement from below upward." On the contrary, the mortality rate is extremely high in small business—far higher than that of large business. In the words of Steindl, "it seems to be a more realistic assumption that most small businesses die before they have time to grow."[7] Third, Marshall completely overlooked such important institutional gaps as the absence of adequate means of supplying small firms with venture capital and long-term credit. Because of these and other objections it gradually became clear that Marshall's attempt at reconciling increasing returns with competition was far from adequate.

A new solution was offered in the twenties by Professor Pigou, who brought his formidable, theoretical abilities to bear on the problem. His theory set in juxtaposition the external economies arising from an expansion of an industry as a whole with the operation of the industry's individual members. He advanced the suggestion that while an entire industry, as a result of an over-all expansion, might be operating under conditions of increasing returns, its individual firms could be operating (a) either under diminishing returns—in which case there would obviously be no tendency toward monopoly; or (b) under increasing returns which, however, were shared by each member of the industry—in which case there would be little or no tendency toward monopoly since each firm would, presumably, reflect the expansion in the industry as a whole by expanding more or less proportionately.[8]

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[5] A. C. Pigou, *Economics of Welfare* (3rd ed.; Macmillan), p. 788.

[6] Cf. Steindl, *op. cit.*, pp. 4-10.

[7] *Ibid.*, p. 8.

[8] For his discussion of the former alternative, see A. C. Pigou, *Economics of Welfare* (1st ed.), p. 940; for the latter see *Economic Journal*, June, 1928. The plausibility of this theory was strengthened by the extension of the concept of external economies to include those gains in efficiency which result from the increasing specialization of industry.

This theory was immediately criticized on the grounds that it was applicable only in those instances where an industry as a whole was expanding and thereby obtaining external economies. In the words of Professor Robertson, "It must be remembered that where external economies of large-scale production are absent, it is still impossible, under Prof. Pigou's analysis, for competitive equilibrium to exist with increasing returns."[9]

Pointing out that this omission was of major importance, Professor Robertson went on to state:

> If we take an increasing return industry which is out of equilibrium, with demand price in excess of supply price, and watch its progress towards equilibrium, we must surely conclude that *frequently* the main factor in this process is the scramble by individual firms, regardless of the actions of their neighbors, to reap the direct advantages of large-scale organization and plant—advantages which have always been obvious and are in no sense being brought into existence, either through the medium of increased specialisation or in any other way, by the growth in the output of the industry as a whole. The question is whether this process, which admittedly does not always end in the abandonment of competition, can or cannot be played upon by the mind with any success *without abandoning the theory of competition.*[10] (Italics added.)

Several additional attempts at reconciliation were advanced but all were extremely hypothetical in character—owing in part to the continuing absence of data—and none received any measure of widespread acceptance.

Such are the broad outlines of the historical theoretical debate on the compatibility of competition with increasing size. The purpose of this paper is to take the first step in what may one day be a thoroughgoing *empirical* study of the entire question of the "Comparative Efficiency of Different Sizes of Business." And the first step, as stated above, is an examination of the impact of technology on size.

2. *Technology and Larger-Scale Operations.* From the beginning of the Industrial Revolution, the scale of operations has tended to become larger; that is, an increasing share of productive activity has been carried on in larger plants; on an over-all basis, large plants with over 1,000 wage earners increased their share of total manufacturing employment from 18 per cent in 1914 to 27 per cent in 1937, a trend which of course was well under way long before 1914.[11]

Behind this long-term trend have been definite technological forces which have tended to promote a larger scale of operations.[12] Since these forces are well known, they need only be briefly mentioned in this paper. Basically, they were to be found in the use of new sources of power (steam), new types of materials (steel), new machines and processes (expensive, single-purpose machines and mechanical processes), and new forms of transportation (railroads). Each of these developments was, in itself, a powerful force toward large-scale operations, and each of them interacted among the others, thereby imparting a cumulative impetus toward the centralization of productive units.

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[9] *Economic Journal, op. cit.,* March, 1930, p. 87.

[10] *Ibid.*

[11] The statistical data in this paper on the long-term trend of the size of establishment are taken from TNEC Monograph No. 27, *The Structure of Industry* (1941).

[12] The term "scale of operations" refers to productive units—plants, mines, mills, etc.—as contrasted to ownership organizations—corporations, concerns, etc.

3. *Technology and Smaller-Scale Operations.* But this trend toward large size has by no means been universal throughout all manufacturing industries; nor has it even been a continuous movement. Apart from whatever long-range effects World War II may have had on plant size, the evidence indicates that, insofar as manufacturing as a whole is concerned, the movement came to an end during or shortly after World War I. Although it is true that the relative importance of large plants rose significantly between 1914 and 1937, most of this increase took place between 1914 and 1919, the proportionate importance of large plants with over 1,000 wage earners rising only slightly between 1923 (23.3 per cent) and 1937 (26.9 per cent)—years which were of roughly comparable levels of economic activity.

Moreover, much of the increase in the average plant size of manufacturing as a whole between 1914 and 1937 was due simply to the emergence of a small number of large-scale, mass-production industries in which large plants predominated from almost the very outset. No less than one-third of the entire increase of plant size during this period was due to the expansion of only five major large-scale industries, which nearly trebled their importance—steel mills, motor vehicle bodies and parts, rubber tires, electrical machinery, and chemicals. As the Department of Commerce stated, in summarizing the long-term trend in plant size:

> What is the total picture? It is one of a slow but definite increase in the size of establishment since the turn of the century. This increase should be considered, however, against the background of a general increase in population and wealth, as well as a trebling in the aggregate volume of production. To a considerable degree, the increase has been the result not of a universal trend toward size, but rather the increasing importance of certain of the large-scale industries.[13]

It is a little known fact that during this long-term period between 1914 and 1937, when the large plant was capturing the imagination of observers everywhere, the average size of plants was actually decreasing in a significant number of industries. Out of 204 industries for which comparable data are available, the average size of plant (as measured by wage earners per establishment) decreased in no less than 63, or roughly one-third of the total.

Of course, in some of these cases, such as feathers, plumes, and

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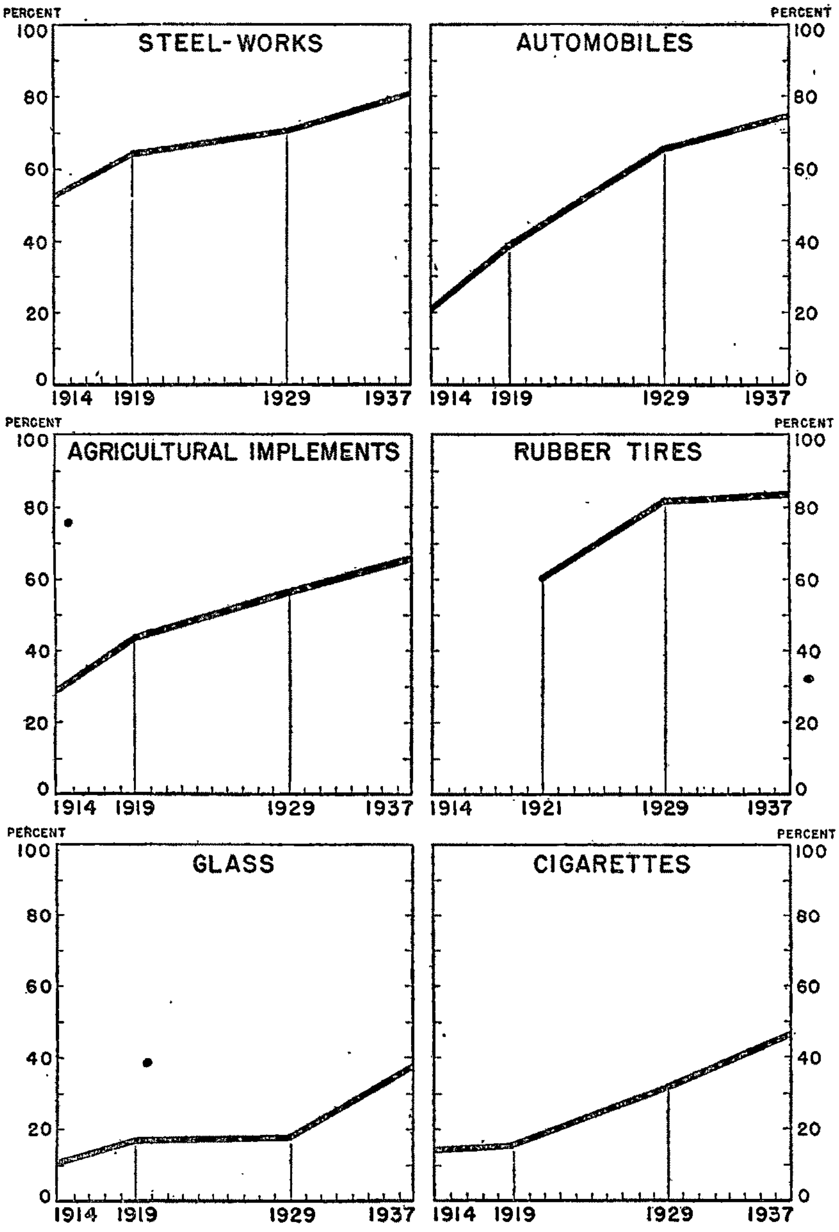
[13] TNEC Monograph No. 27, *op. cit.*, p. 18.

TRENDS TOWARD LARGER-SCALE OPERATIONS

SELECTED MANUFACTURING INDUSTRIES

PROPORTION OF TOTAL WAGE EARNERS EMPLOYED
IN PLANTS WITH OVER 1000 WAGE EARNERS



SOURCE: T. N. E. C. MONOGRAPH NUMBER 27 (BASED ON CENSUS OF MANUFACTURES)

manufactures thereof, or corsets, the decrease was due merely to a declining industry (although the use of these particular examples may now be somewhat premature in view of present trends in the world of fashion). But in many other cases, the decrease in average plant size can in no way be attributed merely to a declining industry. Out of the 63 industries in which the average size of plant decreased, 22 were characterized by increases in both establishments and wage earners, the former having exceeded the latter. And in 19 additional industries, establishments increased in number while employment declined.

In these cases of non-declining industries, the question obviously arises as to the underlying causes of the decrease in the average size of plant. Similarly, what were the causes of the flattening out, following World War I, of the long-term upward trend in the relative importance of large plants in manufacturing as a whole? To supply any definitive answer to these questions would require comprehensive studies of numerous individual industries—a task which is quite beyond the confines of the present paper.

It is known, however, that the small plant has always had certain natural advantages, as in the production of specialized articles. For example, in a report issued shortly after World War I the British Standing Committee on Prices stated:

> The furnishing industry, indeed, is, in effect, an illustration of the theory now generally accepted, that there is a growth of specialisation no less striking than the growth of standardisation, and that while the latter more and more tends to centralisation and mass production, the former retains the subdivided form of industry, and affords scope for the small master and individual producer.[14]

The small plant has traditionally been conceded the advantage in areas in which "the demand is not large, steady or uniform." In the words of Henry Clay:

> Wherever the material worked is not uniform in quality, or cannot be graded or treated in bulk, then the large-scale methods . . . will not apply. An article or process cannot be standardised unless there is a large trade. Now there are many articles and services for which the demand is not large, steady, or uniform. There are many processes of manufacture which cannot be standardised. Here is the field for the small firm.[15]

The traditional advantages of the small plant have been summarized by Lewis Mumford as follows:

> To be efficient, the small plant need not remain in continuous operation, nor need it produce gigantic quantities of foodstuffs and goods for a distant market; it can respond to local demand and supply; it can operate on an irregular basis, since the overhead for permanent staff and equipment is proportionately smaller; it can take advantage of smaller wastes of time and energy in transportation, and by face-to-face contact it can cut out the red tape of even efficient large organizations.[16]

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[14] Cf. I. F. Grant, "The Survival of the Small Unit in Industry," *Economic Journal*, December, 1922, p. 493.

[15] Henry Clay, *Economics for the General Reader* (MacMillan, 1916), p. 34.

[16] Mumford, *op. cit.*, p. 225.

But, in addition to these traditional natural advantages, it may logically be surmised that just as technological forces were basically responsible for the long-term increase in the over-all importance of large plants, so may technological forces of an entirely different character be responsible for these trends toward a smaller scale of operations. And upon closer examination it appears, in point of fact, that there are important new technological developments which tend to promote a smaller rather than a larger scale of operations. Representing the logical counterpart of the nineteenth century technological forces, these new "capital-saving techniques," as they have been termed, or "decentralizing techniques," as they may also be termed, make possible a large increase in output with only a small increase in capital or, correlatively, the same amount of output with a much smaller amount of capital.[17]

The more important of these new techniques fall into the same categories of technological change which underlay the Industrial Revolution—power, materials, machines, and transportation—but they are qualitatively far different and their effect upon size is the reverse of the nineteenth century technology. Just as steam replaced water wheels as the primary source of industrial power, so is steam in turn being replaced by electricity; as steel replaced wood as the basic material of industry, so is it in turn being replaced by light metals, alloys, plastics, and plywood; as single-purpose, highly specialized machines replaced hand labor, so are they being replaced by newer, more flexible and adaptable mechanical and chemical machines and processes; and as railroads replaced the canal, the wagon, and the oxcart, so are railroads being replaced by the motor truck and the automobile.[18]

In considering these decentralizing techniques, their potential importance in economic theory must constantly be borne in mind. Indeed, they may provide an acceptable solution to the traditional dilemma of whether or not the maintenance of competition can be regarded as compatible with increasing size. If these techniques were introduced in a given increasing returns industry, they would presumably have the effect of reducing the scale of operations at which diminishing returns set in. If the techniques were to become an important factor in the industry, they might result in a substantial movement of the point of diminishing returns toward smaller size.

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[17] In passing, it might be noted that these techniques have received attention in economic theory almost entirely from the point of view of their depressing effects upon the rate of investment. Surprisingly enough, their possible effects upon the size distribution of industry and upon competitive theory in general seem to have been almost entirely overlooked—another indirect reflection, incidentally, of the triumph of Keynesian theory over competitive theory.

[18] The examples of decentralizing techniques cited below are taken principally from a paper read by David Weintraub at a meeting of the American Economic Association in joint session with the American Statistical Association in Detroit, Mich., December 28, 1938; Lewis Mumford, *Technics and Civilization* (Harcourt, Brace, 1934); Raymond F. Yates, *Machines Over Men* (Frederick A. Stokes, 1930); TNEC Monograph No. 22, *Technology in Our Economy*, Part II, by John M. Blair; and the author's continuing research.

It must be remembered that in discussing this dilemma, "the early Victorian economists, marvelling over the mechanized efficiency of the monster textile mills"[19] and their successors, implicitly assumed that in most increasing returns industries, diminishing returns would set in only after a very large size had been achieved, near or even beyond the size of the largest existing unit in the industry. That they made this assumption is apparent from the whole tenor of their discussions and from such specific manifestations as their almost exclusive use of railroads and iron and steel as examples of increasing returns industries. Moreover, such an assumption would have been thoroughly consistent with the technology of their day.

Thus if the decentralizing techniques were to achieve the importance which, it appears, they inherently possess, their operation would logically result in a significant shifting of the point of diminishing returns toward smaller size—smaller as compared both with the actual reality of the nineteenth century technology and with the assumptions made by the economists of that day. To use Professor Robertson's words, "the scramble by individual firms, regardless of the actions of their neighbors, to reap the direct advantages of large-scale organization of plant" would then come to an end at a point below any very large scale of operations, perhaps even below a medium-large scale of operations, and certainly well below any size associated with monopoly. If these techniques were to achieve this result, this "scramble by individual firms" could indeed be played upon by the mind with success "without abandoning the theory of competition."[20]

The replacement of steam by electricity, which has continued through prosperity, depression, and war, has been among the most important of the decentralizing techniques. Although the sites of steam-generating electric plants—still the most important source of electric power—are limited by their dependency on coal for fuel and on rivers for cooling, the advent of electricity has contributed powerfully to industrial decentralization in that: electric power can be transmitted over great distances, whereas the transmission of direct steam power is necessarily limited to the confines of a single plant; the amount of power per ton of coal made available to the individual machine is greater with electricity than with direct steam power because of the greater loss in transmitting the latter; as a consequence, the generation of electric power for industrial use is feasible in areas which do not have sufficient coal to support a comparable level of industrial activity with direct steam power; and electricity can be generated by new sources, particularly by hydro power as well as by diesel electric units, which not only produce reasonably inexpensive energy but also provide complete independence from coal.

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[19] Mumford, *op. cit.*

[20] D. H. Robertson, *op. cit.*, March, 1930, p. 87.

Thus to a considerable extent the congestion of industrial plants around coal-producing areas, which has always been considered socially undesirable, has now been made economically unnecessary.

While steam has a centripetal effect by drawing industrial plants around the source of power, electricity has a centrifugal effect by diffusing power out to the plants, thereby making possible their location in terms of other economic factors such as markets, sources of raw materials, etc. Inasmuch as these other economic factors are much more numerous and widely scattered than the important sources of coal, it follows that the use of electricity would logically result in the establishment of a larger number of decentralized and presumably smaller plants.

The decentralizing effects of electricity extend to the individual machine which can now be located wherever it can be most advantageously operated. This mobility of equipment is in striking contrast to the inflexible and centralizing effects of steam, which tended to crowd together as many machines as possible along great line shafts hung from the ceilings and carrying pulleys to which the individual machines were belted.[21] With its new-found freedom, the individual machine can now work at its own rate of speed instead of being governed by the speed of the line shaft; it can start and stop in accordance with its own needs; it can be located wherever its efficiency is greatest; in short, the machine has tended to become independent of the size and character of the plant in which it happens to be located.[22] This is particularly true of that most important of capital-saving machines, the independent, individually-operated, multiple-purpose machine, whose development necessarily awaited the introduction of electricity. In much the same manner, the precision with which electricity can be regulated has made possible the development of another important capital-saving technique—industrial measuring, recording, and controlling devices.

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[21] The resultant inefficiencies were obvious: much of the power applied was lost through friction and slippage in the belt system; machines were located, not in accordance with the flow of work or other desirable economic arrangements, but, rather, in order to secure power with the least possible loss in transmission; breakdowns in the main shaft or in important belt lines brought the entire plant to a standstill; traveling cranes or similar means of internal transport could not be used because of the shafting and belting, etc. Although many of these inefficiencies have already been eliminated, it is still true that a vast number of productive operations which were originally brought into one plant only because of the requirements of steam, have remained centralized. This cultural lag in the engineering world is due in no small part to the financial (as contrasted to the technological) consideration that in many cases the existing shaft-driven power equipment has not been amortized, while the equipment used to drive the line shaft would be almost valueless on the open disposition market.

[22] The importance of electricity as a decentralizing technique was noted as early as 1921 by the British Standing Committee on Prices which, in commenting on the increasing importance of small plants in the furnishings industry, stated: "Certain economic factors aid this development, as, for instance, the availability of electric power in the small workshop." (Cf. I. F. Grant, *op. cit.*, p. 493.)

In short, electricity, by greatly widening the area in which plants can be located from coal sites, by freeing the individual machines from the long line shafts, by making possible the introduction of the individual, independently-operated, multiple-purpose machine, and by promoting the use of automatic controls of production has set in motion a profound transformation of the whole structure of industry—a transformation which is now well under way. As Mumford has stated:

> With electricity, the advantages of size from any point of view, except in possible special operations like the production of iron, becomes questionable . . . the efficiency of small units worked by electric motors utilizing current either from local turbines or from a central power plant has given small-scale industry a new lease on life; on a purely technical basis it can, for the first time since the introduction of the steam engine, compete on even terms with the larger units. . . . Bigger no longer automatically means better; flexibility of the power unit, closer adaptation of means to ends, nicer timing of operation, are the new marks of efficient industry. So far as concentration may remain, it is largely a phenomenon of the market, rather than of technics, promoted by astute financiers who see in the large organization an easier mechanism for their manipulations of credit, for their inflation of capital values, for their monopolistic controls.[23]

Just as electricity is replacing steam as the source of power, so are light metals, alloys, plastics, and plywoods replacing iron and steel as the modern industrial materials. While the actual production of some of these raw materials, particularly the light metals, still involves large capital outlays, important capital-saving effects may be achieved in their fabrication into finished products. In the case of aluminum, the capital-saving stems from the ease and rapidity with which they can be machined. As contrasted to steel, the use of aluminum makes possible the operation of machine tools at much higher speeds, thus producing a greater volume of product within a given period of time, without, however, materially shortening the life of the machine. In other words, with the same capital investment in fabricating equipment, the output of finished products can be substantially increased.[24]

The future of light metals depends, of course, upon the unit production cost of the basic metals themselves. During the war the production costs of aluminum (excluding depreciation and overhead) in the new government-owned plants exceeded ten cents a pound, even in the lowest-cost plant, Spokane, which was able to obtain huge blocks of extremely low-cost electric power. The future of the present processes of magnesium production is even less favorable; during the war the production costs of the most efficient government-owned plant exceeded 11 cents a pound.[25] With all of their attributes of machinability, lightness, and strength, aluminum and magnesium will never make serious inroads in the world of metals as long as they are dependent upon processes whose production costs are several times the selling price of steel.

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[23] Mumford, *op. cit.*, pp. 225-226.

[24] Cf. N. H. Engle, H. E. Gregory, R. Mossé: *Aluminum* (Richard D. Irwin, 1945); e.g., "The greater ease with which aluminum can be machined, plus the fact that less aluminum is wasted, results in lower over-all cost of the finished product" (p. 306). Also cf. p. 307, "require less machining"; p. 328, "its workability"; p. 308, "easier to handle," etc.

This does not mean, however, that the future of light metals is hopeless. Quite the contrary. It merely means that their future rests with new production processes, a number of which appear to hold great promise.[26] As one example, during World War II, scientists of the U. S. Bureau of Mines developed a new chemical process of producing exceedingly pure alumina from low-grade bauxite or even ordinary clay. The process, known as the "Roller" process, was tested at pilot plants in Alabama and Maryland, with favorable results. Some of the scientists associated with its development feel, with perhaps that normal overenthusiasm which accompanies any new invention, that this process may be capable not only of substantially lowering the production cost of aluminum but also of establishing the industry on the basis of an abundant supply of domestic materials. If just one of these new processes can be successfully translated from the laboratory and the pilot plant stage into large-scale commercial operations, the age of light metals will be at hand. And when it does arrive, the giant plants and mighty machinery used to fabricate intractable metals such as steel will gradually tend to disappear.

While the heavy metals may thus be ultimately headed for the technological scrapheap, there are certain uses of alloy steels and similar alloys which have had a decided, though different, type of capital-saving effect by making possible improvements in the construction of machines and equipment, resulting in higher efficiency and greater durability, with a substantial decrease in capital requirements per unit of production capacity. For example, the use of chromium plating in tool and die making has extended the life of various tools and parts as much as twenty times. Likewise, the use of tungsten and tantalum carbides in cutting tools has made possible a phenomenal increase in the productivity of machine tools. Capable of withstanding the wear of high-speed machine cutting and with a longer life between sharpenings, these carboloy tools have greatly increased the speed of operations, with only a nominal capital investment.

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[25] Cf. 79th Cong., 1st sess., Hearings before the Senate Small Business Committee, Part 55, *Future of Light Metals,* March 29, 1945.

[26] Cf., *ibid.,* pp. 6690-6692.

As compared with the casting, forging, and machining of iron and steel, the processing of another new material, plastics, is a matter of striking simplicity. Resinous powders are placed in molds, heat and pressure are applied, and the resinous matter almost instantly emerges as a finished product. Moreover, a complete part may be molded by the simple means of inserting metal bushings, pins, screws, plates, and springs in the mold or die. Polishing, grinding, painting, or plating are generally unnecessary, as a smooth finish may be obtained in a wide range of predetermined colors. "Here again a material which is replacing metal, wood, glass, and paper circumvents the machine shop, jumps from the raw material to the assembly line in one mighty leap."[27]

Today there are thousands of varieties of synthetic resins, with uses ranging from adhesives to watch crystals, from automobile and airplane parts to telephone equipment, from bearings to transcription records; and, even so, their potentialities have hardly been tapped. "The potential widespread use of plastics is merely another link in the chain of replacements inherent in technology and . . . involves the substitution of a material requiring less labor (and less capital, it might be added) than the product replaced."[28]

Although less well known, plywood may well become one of the most important of the new materials. As in the case of plastics, the production process is comparatively simple and inexpensive. Several layers of wood are placed on top of each other and impregnated with gluey substance. The mass is then subjected to heat and extreme pressure. The resultant material is durable, rust resistant, and extremely strong. Moreover, a major improvement has recently been made in the production process; electronic or induction heat has been applied, thereby achieving uniformity of heat throughout the entire mass, as contrasted to the older process in which heat tended to diminish toward the center. With this new development, plywood structural beams have been produced which are nearly as strong as steel and just as reliable for many purposes.

In summary, because of the greater machinability of light metals, the simplicity and low cost of producing plastics and plywood, and the reduced obsolescence and greater productivity of machinery resulting from the use of alloys, it may be expected that the increased substitution of these new materials will reduce the amount of capital required per unit of product and thereby tend to result in the establishment of newer, smaller, and more efficient plants.

Modern technology has had the same general capital-saving effects in the field of machinery and processes as in power and materials. The most important mechanical capital-saving technique is the independently-operated, multipurpose machine. Powered by electricity and practically independent of its surroundings, the multipurpose machine can operate intermittently and quickly change the nature of its product, thereby enabling the small plant to take the fullest advantage of variations in local demand.

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[27] Yates, *op. cit.*, p. 28.

[28] TNEC Monograph No. 22, *op. cit.*, pp. 109-110.

Moreover, with the addition of a few appurtenances, it also brings the important element of high-speed output. Thus the ordinary lathe can readily be transformed into high-speed mechanism, capable of producing thousands or millions of the same identical product at a rate of speed approaching that of the most expensive specialized machine. But whereas the specialized machine is forever wedded to the same type of product, the multipurpose machine can pick and choose among an almost unlimited range of products. With one set of fixtures, jigs, chucks, etc., it can make one product; with a slight adjustment of these fixtures, it can turn out an entirely different product; the permutations and combinations of its possible output are endless. As measured by the three basic criteria of machine operations—speed precision, and versatility—one multipurpose machine with automatic adjustments may represent the equivalent of a whole series of specialized machines; a few multipurpose machines may replace whole factories.

New processes such as welding, stamping, and die-casting comprise another important mechanical form of capital saving. While important as a cutting tool, welding achieves its real significance in the binding or joining of metal, particularly through resistance or spot welding. With this device, low voltage heavy current, which produces rapid heat, is automatically cut off when the metals are sufficiently soft and malleable to fuse together. Requiring only a fraction of a second on small articles and a few seconds for large pieces, welding "is bolt-less, screw-less, rivet-less fabrication in a big way."[29] In fact through the use of welding methods, complete machines may be welded from ordinary flat-rolled steel, thereby replacing foundry operations which involve special patterns and cores for each casting. "Although the cost of the newly developed welding machines themselves is still very high, the total capital investment for a welding shop is probably much smaller than for a foundry which could produce an equal number of the same type of machines."[30]

A second mechanical process with tremendous capital-saving implications is stamping. "We can no longer afford to whittle away at metal with planers, lathes, broaches, shapers, and files. Metals must be slugged, battered, and hammered into form. Millers, planers, lathes, and the like are more and more being pushed back into the field of mere prime producers, the makers of dies and of parts for the more persuasive demons of the 'hammer and tong' variety."[31] Instead of casting or forging a rough part and then finishing it with the more slowly-operated machine tools, the stamping plant takes ordinary metal rods or sheets, heats them, places them in the die of the punch-press, slams at them several times with the press, and in the matter of seconds produces an article which is a completely finished product or requires at most only a relatively small amount of "finish machining." With a capital outlay involving only the purchase of a few presses and several dies, with power and overhead ranging from as low as one-tenth of a cent on small items to only a few cents on large items, and with only a few workers to operate the presses, the total costs of the stamping plant are far lower than those of the older method of casting or forging followed by machining.[32]

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[29] Yates, *op. cit.*, p. 34.

[30] Wientraub, *op. cit.*

The third new process, die-casting, differs from ordinary casting in that molten metal is poured under pressure into a carefully-prepared, accurately-machined metal compartment, instead of into a rough mold. Since the compartment is precisely constructed, the metal taken from it, after cooling, meets exact specification, thereby eliminating the necessity of machining which is usually required in the case of ordinary castings. By inserting bronze bearings, steel shafts, pins or springs in the metal compartment, fairly complicated products may be produced.

The capital-saving effects of die-casting are twofold: first, it eliminates machining. "Forty to fifty machining and preparing operators may be swept away with a single broom."[33] And second, it promotes the use of light metals, which, as noted above, have important capital-saving effects in themselves.[34] Die-casting offers to both aluminum and magnesium a highly productive, accurate, and relatively inexpensive method of fabrication, the potentialities of which have by no means yet been realized.

The world of chemistry offers perhaps greater potentialities of capital-saving than even these extremely efficient new mechanical processes.[35] A wide range of chemical improvements have been developed in recent years which have resulted in speeding up operations, reducing waste, and improving the value of products. "These improvements were frequently accomplished without any capital expenditure or with relatively small ones."[36] For example, in the beet sugar manufacturing industry, improved chemical processes contributed to the increased productivity of plants, raised the proportion of sugar extracted from the beets, and increased the capacity of the plants. The paint industry affords another example of a field in which improvements in chemical processes led to a material increase in quality and quantity of production with only a relatively small expenditure of resources.

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[31] Yates, *op. cit.*, pp. 36-37.

[32] This modern battering ram is already capable of shearing, trimming, parting, notching, blanking, punching, piercing, bending, beading, expanding, curling, contracting, burring, wiring, drawing, extruding, forging (hot and cold), swaging, flanging, embossing, and pinching. (Yates, *op. cit.*, p. 36.)

[33] Yates, *op. cit.*, p. 25.

[34] Cf. e.g., the comment of a large producer of food mixers and electrical appliances: "We cannot die-cast gray iron and it has to be machined. Aluminum die castings do not require machining which means a labor saving." (N. H. Engle, H. Gregory, R. Mossé, *op. cit.*, pp. 326, 332.)

Finally, in the field of machines and processes, the development of industrial measuring, recording, and controlling instruments has had significant capital-saving effects.[37] Since the end of the first World War, the importance of industrial instruments has steadily increased. Sales of industrial instruments, per thousand dollars of all machinery produced, rose from a ratio of 3:8 in 1919 to 10:6 in 1929 and then to 14:4 in 1935. If similar data were available for current years, it would probably show an even higher ratio.

Moreover, there has been a significant shift in the types of industrial instruments sold. The more complicated and effective instruments, which actually control the operation of machinery by operating valves, switches and other regulatory devices, have steadily risen in importance, at the expense of the simpler instruments which merely measure or record. In 1923 control instruments represented only 8 per cent of the sales of all industrial instruments, with recording instruments accounting for 64 per cent and indicators the remaining 28 per cent. But by 1935, control instruments had climbed to 33 per cent of the total, while recorders had dropped to 45 per cent and indicators to 22 per cent.

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[35] An early example of the capital-saving potentialities of chemical processes was cited by the British Standing Committee on Prices—the substitution of "wood," "unbrewed," or "artificial" vinegar for the regular or "brewed" vinegar. The production of the latter "requires an expensive plant, the maintenance of a brewery, and, before the brewed vinegar is passed out for sale, the whole process, including maturing, requires many months and a considerable expenditure of labour and fuel." In contrast, the production of "unbrewed" vinegar, which had been expanding since about 1901, involved only the simple dilution of acetic acid with water and the addition of caramel; only experts could taste the difference. "Unbrewed vinegar is easily made on a small scale in domestic fashion, without any works maintenance or appreciable outlay of capital. . . . So long as any small trader can, on his own premises, produce unbrewed vinegar at a cost not appreciably higher than that at which the larger makers can produce, there is obviously little or no possibility of makers selling such vinegar in a district which necessitates any considerable expenditure in distributive costs." (Cf. I. F. Grant, *op. cit.*, p. 492.)

[36] Wientraub, *op. cit.*

[37] The following information relating to industrial instruments is taken from *Industrial Instruments and Changing Technology*, by G. Perazich, H. Schimmel, and B. Rosenberg (National Research Project, 1938).

The growing importance of industrial instruments, particularly the controlling devices, has important capital-saving effects. By assuring accuracy of operations and high quality of output, they have aided small plants, possessing relatively inexpensive general-purpose machines, to compete effectively on a product-for-product basis with large plants possessing expensive, highly-specialized machines. By speeding up operations and eliminating unnecessary idleness of equipment, they have tended to increase the effectiveness of existing capacity, thereby eliminating the necessity of purchasing additional capital equipment. By effecting savings in fuels and raw materials, they have tended to reduce the number of buildings and the amount of equipment required in handling, preparing, and storing. By improving the continuity of operations, they have made possible substantial reductions in stand-by equipment. By protecting equipment against breakdowns, they have tended to reduce the amount of capital spent on repairs and replacements. And by promoting a greater uniformity of operations, that is, by reducing or eliminating sudden changes in the speed of operation, temperatures, pressures, etc., they have extended the life and usefulness of existing equipment. In short, these instruments are not only capital-saving but capital-preserving as well—qualities which, incidentally, are of much greater importance to small than to large enterprises. As the report on this subject of the National Research Project concludes: "Thus the relatively low-cost measuring devices, designed primarily to improve operating efficiency, have frequently contributed also to large savings in capital."[38]

In the field of transportation, the motor truck and the automobile have had very important capital-saving effects. The most direct effect has been that of substantially reducing the over-all capital requirements of transporting the national output. But of even greater importance to capital-saving has been the impetus which motor transport has given to plant decentralization. "With the new automobile, power and movement were no longer chained to the railroad line: a single vehicle could travel as fast as a train of cars: again the smaller unit was as efficient as the larger one."[39]

No longer is it necessary to channel raw materials over great distances from a relatively small number of rich sources into a few giant clusters of industrial facilities located at the railroads' terminal points. And no longer must the mass distribution of the finished products be limited to those markets which can economically be served only by the railroads.

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[38] *Ibid.*, p. 81.

[39] Mumford, *op. cit.*, p. 236.

In essence, the motor truck has tended to transform the inflow of materials and the outflow of finished products from a giant national pattern into smaller regional and local patterns. Within these smaller market areas, the decentralized plant, obtaining it materials and distributing its finished products by truck, has frequently gained important advantages over the distant, larger plant which is harnessed to the inflexible railroad lines. The truck-serviced, decentralized plants can tap nearby sources of low-cost raw materials which have never been exploited merely because they did not exist in sufficient quantities to justify the expense of a railroad line. Similarly, it can service nearby local markets whose potential demand has never been fully met merely because of their distance from the tracks. The combination of electric power and motor transport has thus brought the same type of flexibility and fluidity to plant location as the independent, multipurpose machine has brought to internal plant operations.

In the future the contemplated enormous expansion of the nation's highway system, the steady improvement in the efficiency of the motor truck, and the seemingly endless upward spiral of railroad wage costs and railroad freight rates should steadily increase the importance of the motor truck as a capital-saving technique.

Quite apart from the truck, the automobile has had its own capital-saving effects. It, too, has contributed to plant decentralization, but in a different way. No longer must a plant be located within a large industrial center in order to be assured of an adequate supply of labor. Rather, the workers, using their automobiles, can and do commute over long distances between their homes and the plant, wherever it may happen to be. By means of the automobile, the workers may be brought to the plant, instead of the plant being brought to the workers. The daily and widespread commuting over incredible distances which took place during the war gives some idea of the extent to which the automobile can free plant location from the traditional centers of industrial production.

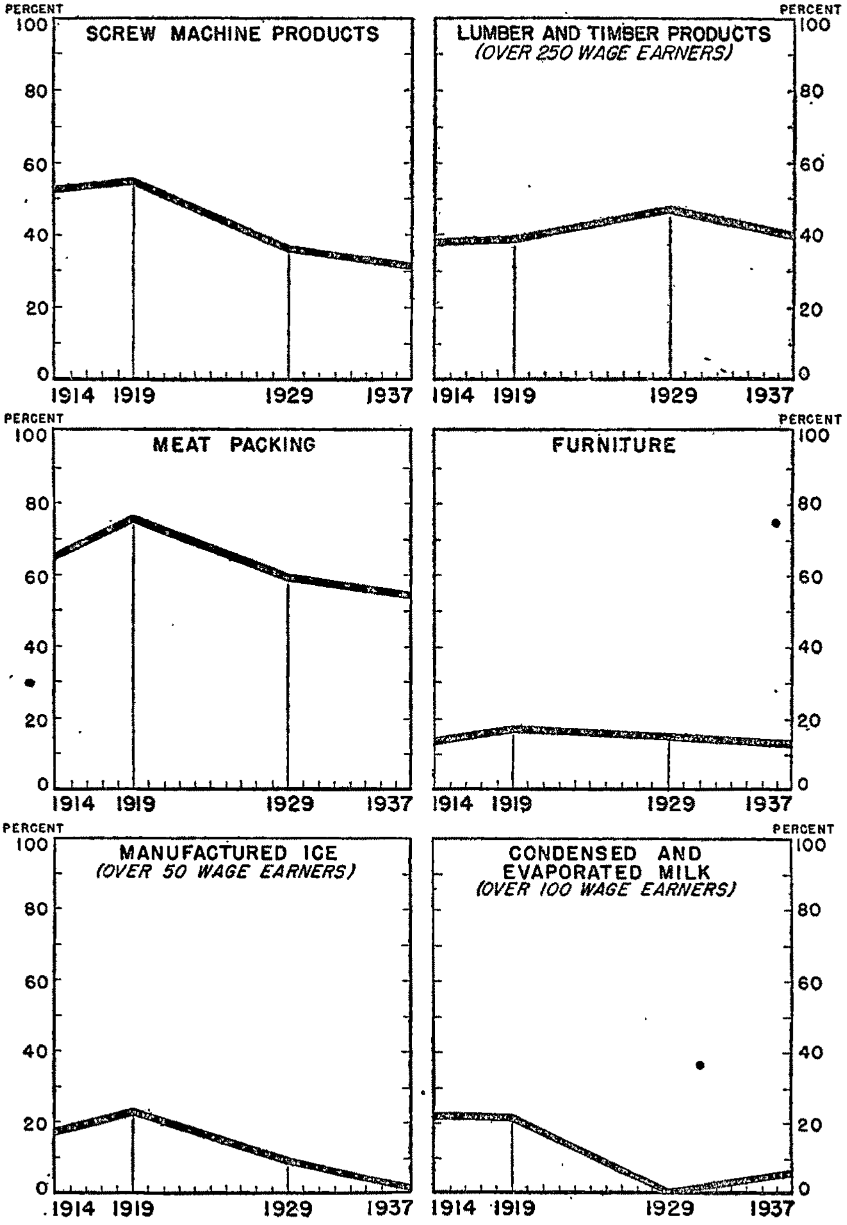
Despite the obvious importance of the decentralizing techniques, it should by no means be presumed that the age of decentralization is upon us. While some of the techniques, such as electricity and motor transport, have already been widely adopted by American industry, others, such as the new materials, are still in their industrial infancy. And even many of the new mechanical and chemical machines and processes, which have already demonstrated their advantages, are just beginning to receive general recognition.

Any attempt to forecast the speed of decentralization would neces-

TRENDS TOWARD SMALLER-SCALE OPERATIONS

SELECTED MANUFACTURING INDUSTRIES

PROPORTION OF TOTAL WAGE EARNERS EMPLOYED
IN PLANTS WITH OVER 500 WAGE EARNERS



SOURCE: T.N.E.C. MONOGRAPH NUMBER 27 (BASED ON CENSUS OF MANUFACTURES) sarily represent nothing more than pure speculation, since the rapidity of the process will be governed not only by the improvement and adoption of the technological developments themselves, but also by certain nontechnological factors—particularly the ability to obtain necessary financial aid and freedom from monopoly controls. However, it is possible to make certain assumptions concerning the factors involved, and on the basis of these assumptions to make a rough generalization concerning the probable rapidity of the movement. Thus the decentralization of American productive units could be expected to take place at a fairly rapid rate under the following assumptions: that the institutional bottlenecks of monopoly controls and lack of capital, insofar as they relate to these technological developments, could be largely overcome; that the increasing use of electricity and motor transport would continue at a rate somewhere near their prewar trends; and that the rate of adoption and use of the new machines and processes would be materially accelerated.

If to these there is added the further assumption that the production of the light metals would finally be freed from the high-cost processes which have held them in check, the whole process of decentralization would move with startling rapidity.

Although these may appear to be somewhat optimistic assumptions, particularly the first, the next two are certainly well within the limits of reasonableness, while the last is by no means improbable. The principal lesson to be learned from any study of technology is that the transformation of the hypothetical and the remotely possible into the actual represents the commonplace rather than the exception.

As a matter of practical fact, there is tangible evidence which strongly suggests that these decentralizing technological forces are of increasing importance in the actual industrial world. Thus many of the nation's leading corporations have already instituted extensive programs of plant decentralization. For example, General Electric, General Motors, DuPont, U. S. Rubber, Aluminum Company of America, Philco, Pittsburgh Plate Glass, U. S. Steel, to name but a few, have recently either constructed or purchased new plants which, as compared with the existing establishments in their industries, are relatively small in size. General Electric alone has increased its plants from thirty-six in 1940 to ninety-seven in 1947. Most of the corporation's new plants, employing from 50 to 1,500 persons, are considerably smaller than its prewar factories; the company's old plant at Schenectady, for example, has 20,000 workers. Charles E. Wilson, president of General Electric, has stated: "With fewer people we find that management can do a better job of organizing facilities and personnel. This results in lower manufacturing costs and better production control."[40] Incidentally, one business journal, after a survey of decentralization plans of leading corporations, stated: "Most industries do not list lower-paid workers as a reason for seeking new locations."[41]

In concluding this descriptive analysis of the decentralizing techniques, it may be noted that no mention has been made of atomic energy, a force which may well prove to have greater decentralizing effects than all of the other techniques combined. There have been three reasons for this omission: first, there is very little available data on which to base a judgment of the commercial potentialities of this vast new force; second, a definite effort has been made in this paper to lean toward understatement and to avoid the spectacular and the world shattering; and third, an attempt has been made to emphasize the decentralizing potentialities of existing techniques which have already proved their commercial value in the actual industrial world. The dramatic character of atomic energy, together with its obvious decentralizing potentialities, has given rise to a great deal of discussion in which the entire future of decentralization seems invariably to be placed on this one new force, which, in turn, leads to a discounting of decentralization by those who look with a skeptical eye on the industrial possibilities of nuclear fission. The point cannot be made too strongly that, quite without the impact of atomic energy, the existing techniques, in themselves, provide the basis for a very considerable decentralization of industry.

This, of course, should not be regarded as an attempt to gloss over the importance of atomic energy but merely to avoid putting all of the "decentralization" eggs in a single new and untried basket. Actually, to one who has been unable to obtain any firsthand knowledge of the subject, the decentralizing potentialities of this great new source of energy appear to be rather considerable indeed.

On the basis of tentative studies, it appears that the costs of generating electricity in atomic power plants may compare rather favorably with the costs in coal plants.[42] If this proves to be the case, then the other attributes of atomic energy—its mobility and its infinitesimal transportation costs—should lead to its widespread utilization, particularly in underdeveloped areas, thus giving a powerful thrust to the whole decentralization movement. In summarizing his paper on this subject before the last convention of this Association Dr. Sam H. Schurr stated:

> . . . historically the cheapening of power has been of major importance in economic

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[40] *Wall Street Journal*, April 14, 1947.

[41] *Pathfinder*, March 12, 1947, p. 28.

[42] Cf. Sam H. Schurr and Lewis N. Dembitz, "Economic Aspects of Atomic Energy as a Source of Power," *American Economic Review*, May, 1947, pp. 98-117.

> growth, a factor which transcends in importance the savings involved in the substitution of one fuel for another. In this connection, it was noted that the unique mobility of atomic fuel renders it ideal for the purpose of providing cheap power *in regions remote from other energy resources.* Finally, it was stressed that even in regions with abundant fuel resources, atomic energy might have important implications for the major energy-consuming industries. Such industries could experience reductions in production costs either through the cheapening of power, or, as may be possible with aluminum, through the development of production *at new locations* in which atomic fuel is brought to raw materials which had previously to be shipped to other sites for processing. It was suggested that this could have a double-edged importance, resulting both in economic expansion in the regions affected and the growth of demand for those products whose costs had been reduced.[43] (Italics added.)

Will atomic energy actually achieve these potentialities? Only time holds the answer. But, as I observed some eight years ago in a Temporary National Economic Committee monograph:

> Atomic power might become the basis for a new method of generating electricity without requiring any apparatus for transforming heat into mechanical, and mechanical into electrical energy, thus eliminating boilers, engines and dynamos.
>
> Remote as these possibilities may seem at the present time, they only carry to a logical conclusion tendencies already existent in the field of power and energy development.[44]

If these possibilities were "remote" eight years ago, certainly they are far less so today.

4. *Efficiency and Size of Company.* The increasing importance of the decentralizing techniques raises a fundamental question concerning the ownership and control of industry: If these techniques do lead to a significant decentralization of the productive units of industry, why should not ownership and control also be decentralized? The existence of large, plural-unit corporations has traditionally been rationalized on two grounds: that technology requires a large scale of operations, involving big and costly plants, and that several independent plants can be more efficiently operated under common ownership and control than under individual ownership. If technology is, in fact, moving toward a smaller scale of operations, the first rationalization would tend to lose its force and significance. This would leave most of the burden of justification on the second rationalization; namely, that the decentralized units would be more efficiently operated as parts of large, plural-unit corporations than as independently-owned, single-unit concerns. What, then, are the logical and factual bases, if any, for such a rationalization?

The logical argument that the common ownership of several plants does *not* contribute to efficiency has perhaps been best summarized by Dr. Frank A. Fetter:

> It is apparent that the "economy of large production" in this sense is essentially a phenomenon of the single unit plant rather than of plural unit plants. It is a matter of internal arrangements and economies within a single plant. It is technical or technological, not financial or commercial; that is, it is the sum of various economies of time, materials,

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[43] *Ibid.*, p. 107.

[44] TNEC Monograph No. 22, *Technology and Economic Balance,* 1941, pp. 105-106.

> and wear and tear of machinery combined with labor used in a continuous process on one product, as compared with a more or less discontinuous process with change of product and patterns. . . . It will be observed that combination by means of special holding companies or by ownership of stock in other corporations gives unity to the ownership, but not to the productive processes of the subsidiary companies. The physical plants and equipment remain largely under decentralized management; they still produce singly, while the officers of the controlling corporations are concerned almost wholly with financial and general organization and commercial matters. . . . Simple as is the distinction, when formally set forth, between a large single plant with its economy of mass production and a big business in the sense of the combined ownership of plural units, it is constantly ignored, either innocently or intentionally, with resulting great confusion of thought. . . . It is often implied and sometimes explicitly declared with an appearance of seriousness that any limitation of the size of corporations means a return to the hand tools and the small neighborhood shops of the Middle Ages. The exaggerations and error of such a statement surpass absurdity. . . .[45]

On the other side, arguments can be presented ad infinitum in support of the proposition that centralized ownership of plural units does contribute to efficiency. Thus it may be claimed that if the plants are of varying degrees of efficiency, the poorer ones will be brought up to the level of the best. This could be done, for example, by shutting down the more inefficient plants and concentrating production in the most productive units. In regard to this point, however, Dr. Fetter comments: "This is a matter in which there seems to be no positive evidence."[46] Or it may be contended that selling and distribution costs, in particular, are lower when a variety of different products are sold by the same organization. Or that more capable officials and specialists can be hired to supervise specific aspects of the operations of all of the plants. Or that the pooling of the know-how of the formerly independent competitors makes available to the consolidated organization the most efficient practices and methods which had been developed by each of the constituent companies.

By way of rejoinder, it can be argued that the addition of plants under common ownership increases the difficulties of corporate management in effectively supervising the internal efficiency of each plant. Or that the incentives for efficient operation are by no means as sharp and compelling in a huge corporate structure as in single-plant companies. Or that the loss of direct contact between the individual worker and the top management results in a reduction of labor productivity, a failure to use the full skill and ability of the individual worker, and a general feeling of distrust between labor and management. Or that the operation of several plants under common ownership requires the use of expensive accounting and control methods and procedures. Or that under common ownership the operation or the individual plant becomes inflexible—incapable of making rapid adjustments for sudden changes in demand.

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[45] TNEC Monograph No. 13, *Relative Efficiency of Large, Medium-Sized and Small Business*, 1941, pp. 402-406.

[46] *Ibid.*, p. 406.

The debate has gone on for many years and could continue indefinitely. But what do the facts show? Does the evidence indicate that significant economies actually are obtained through the operation of plural units under centralized control? Here again, the evidence is extremely meager. But what information there is may provide some clue to the answer to this fundamental question.

The first statistical attempt to appraise the efficiency of centralized operations was made by Professor Arthur S. Dewing, who compared the earnings of thirty-five consolidations with the previous earnings of the constituent firms which made up the consolidation.[47] Dr. Dewing limited himself to combinations[48] which for the most part were organized before 1903, which had been in existence for at least ten years before 1914, which were formed as a combination of at least five separate, independent competing plants and which had a national rather than a mere sectional or local significance. In twenty of the thirty-five cases the ten-year period began in 1900 and therefore, in Dr. Dewing's words, included "quite as many years of marked business activity as of marked business depression."

Briefly, Dr. Dewing found that the aggregate earnings of the separate competing establishments prior to consolidation were nearly a fifth greater than the earnings of the first year after consolidation, and between a fifth and a sixth greater than the average for the ten years following the consolidation.[49] In twenty-two out of the thirty-five cases, the earnings prior to the consolidation were greater than the average for the forthcoming ten years. *"In brief, the earnings of the separate plants before consolidation were greater than the earnings of the same plants after consolidation."*[50] (Italics added.)

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[47] As a general rule, attempts to determine the relationship between size and efficiency by measuring the profitability of different sizes of companies do not yield meaningful results, since profitability may be determined by many factors, such as monopoly power, which have no necessary relationship to efficiency. Dr. Dewing, however, avoided this problem by comparing, not the profit rate of one size group with that of other size groups, but rather the profit rate of the same identical enterprises before and after consolidation. Since the extent of profitability owing to monopoly power was obviously greater after consolidation, Dr. Dewing's study had, if anything, a bias against the preconsolidation, independent companies. But as a guide to present-day policies, this bias may have been more than offset by the immediate inefficiencies of eliminating deadwood and of generally reorganizing personnel which is an inevitable aftermath of consolidations, as well as by the improvements in management techniques, which it is widely assumed, have taken place since the time of Dr. Dewing's study.

The general inconclusiveness of attempts to determine the relationship between size and efficiency by measuring the profitability of different size groups has been pointed out by Dr. Myron Watkins: "Since 1929, I have followed the reports of investigations along this line by numerous other students and the frequent, often heated debates upon the significance of their findings. Some have used Census data, some have used corporation income tax data, others have used the published financial statements, as I did. Though a few have professed to find evidence of positive correlation between size and earning power, in my judgment a closer scrutiny of the facts disproves such an interpretation." (TNEC Monograph No. 13, *op. cit.*, pp. 138, 139.)

[48] Arthur S. Dewing, "A Statistical Test of the Success of Consolidations," *Quarterly Journal of Economics*, 1922.

[49] In making his aggregate statistical comparisons, Dr. Dewing used both a median and an average between and including the quartiles. Generally there was very little difference between the results yielded by the two statistical measurements.

The second bit of evidence relating to this question of the efficiency of consolidated ownership was provided by a study made by the National Industrial Conference Board.[51] The Board compared the output per man-hour of consolidations with that of independent firms in sixteen manufacturing industries. The period surveyed covered the years 1920-26, though in some cases data were not available for the entire period. The study embraced a wide segment of the manufacturing field, including three industries in metal refining, two in metal manufactures, five in mineral manufactures, two in food manufactures, and four in miscellaneous manufactures. Taking the average of the years for which the data were reported, it was found that of the sixteen industries, the independents showed a clear advantage in six. In three additional industries, there was no material difference between the independents and the consolidations, the percentage differences amounting to less than 5 per cent. In the remaining seven, the consolidations had a clear advantage. In other words, taking the industries as a group, the consolidations and the independents broke about even, with the consolidations having a slight, but very slight, advantage.[52]

The same general results were obtained in terms of the trend of productivity. Out of eighteen industries (the sixteen plus two additional fields for which trend data were obtained), the independents showed a slightly greater increase in output per man-hour in six industries. In four other industries, both the independents and the consolidations made about the same percentage gains. And in the remaining eight the consolidations had the advantage. Taking the industries as a group, there was, again, little difference between the consolidations and the independents, with the consolidations having a very slight advantage.

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[50] The thesis advanced by Dewing and other writers to the general effect that the early consolidations had not been conspicuously successful was challenged by Dr. Shaw Livermore. ("The Success of Industrial Mergers," *Quarterly Journal of Economics*, November, 1935.) However, Livermore did not follow Dewing's procedure of comparing the profitability of identical enterprises before and after consolidation, and therefore his study provides no direct evidence on the question of whether or not the act of consolidation promotes efficiency. Livermore merely traced the profit record of a large number of consolidations after the original merger had taken place. He found that their profit showing was somewhat better than had been commonly assumed, and he attributes this to the capabilities of management. However, it might just as well be attributed to monopoly power, a possibility which Livermore casually dismisses with a few passing undocumented observations. Thus, "Nor was monopoly power, after the first decade, the means by which earnings were obtained." Or the even more surprising statement that "monopoly power was largely lost after 1910, except for a handful of companies (e.g., United Shoe Machinery) by the growth of new competition or because of legal interference."

[51] National Industrial Conference Board, *op. cit.*

[52] The Board made its analysis in terms of the last year for which the data were obtained, 1926, rather than the average for all of the years covered. This procedure would seem to place an undue weight upon the circumstances which happened to prevail in one year. However, the results obtained by the Board were very similar to those yielded here by the use of the averages for the entire period. Thus the Board found "in eleven industries out of a total of sixteen available for comparison, the consolidations showed a superior efficiency to that of their independent competitors. . . . But it was only by a very narrow margin that this superiority was established in two instances . . . and no very decisive advantage was shown in three other industries." In other words, out of the sixteen industries, the consolidations had a clear advantage in only six. (*Ibid.*, p. 97.)

Summarizing the results of this study by the Board, Dr. Myron C. Watkins, under whose direction it was conducted, later stated: "An intimate, firsthand, detailed study of operations in different plants in a wide range of industries . . . *reveals no marked advantage for the large consolidations or so-called multi-unit enterprises*."[53] (Italics added.)

More recent unit cost comparisons between large corporations and smaller companies are available for four widely varying industries—bread, rubber tires, mixed fertilizer, and superphosphate. In 1945 the Federal Trade Commission made a detailed unit cost study covering 283 baking plants in all sections of the country. Unit costs for two periods, the months of March and September, 1945, are shown in the following table for five sizes of companies—the "Big Four," the ten medium-large, the medium, the small, and the smallest.

WHOLESALE BREAD BAKERIES
Unit Costs, in Cents Per Pound, for Five Groups of Companies
March 1945 and September 1945

	Cents per Pound				
	Materials	Labor	Selling and Delivery	General and Administrative	Total Cost
March 1945					
Big Four	3.66	1.83	1.83	0.23	7.55
10 medium-large	3.87	1.50	1.63	0.39	7.39
Medium-sized	3.87	1.56	1.67	0.49	7.56
Small	3.92	1.64	1.67	0.65	7.88
Smallest	4.62	2.11	1.83	0.78	9.34
September 1945					
Big Four	3.81	1.80	1.76	0.21	7.58
10 medium-large	3.91	1.55	1.61	0.34	7.41
Medium-sized	3.89	1.59	1.66	0.46	7.60
Small	3.93	1.64	1.63	0.58	7.78
Smallest	4.59	2.02	1.74	0.77	9.12

In both months, the ten medium-large firms—all of which operated on a regional rather than a national basis—had the lowest unit costs of production and distribution. The Big Four, all nation-wide producers—Continental Baking Company, Purity Bakeries Corporation, General Baking Company, and Ward Baking Company—were second, followed by the other groups in descending order of size.

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[53] TNEC Monograph No. 13, *op. cit.*, pp. 137, 138. A marked discrepancy between the excellent statistical materials of this work by the N.I.C.B. and the conclusions drawn therefrom (?) has been rather caustically pointed out by Paul T. Homan. ("Industrial Combination as Surveyed in Recent Literature," *Quarterly Journal of Commerce*, February, 1930.)

What is perhaps most significant, however, is the fact that in both months the Big Four had the lowest costs of materials, which is more of a reflection of buying power than of any operating efficiency. Given equal costs of materials, not only the ten medium-large but also the next group, the medium-sized companies, would have had much lower costs than the Big Four. Similarly, the Big Four had the lowest overhead costs, which are influenced by the volume of production; according to the Commission, the Big Four's volume of production is secured in large part not by lowering prices generally but by the use of practices which only the financially powerful concerns can inaugurate and use, such as consignment selling, furnishing retailers with free bread racks, giving premiums, allowing special discounts, distributing free bread, etc.[54]

In other words, it was only through the use of two forms of economic power—the power to buy materials cheaply and the power to force their products on the market through questionable competitive practices—that the Big Four were able to rank as well as they did. Without these advantages, which stem more from size than from technological or managerial efficiency, the total unit costs of the Big Four would have been only slightly lower than those of the fourth size group, the "small" companies.

The same general picture appears to be true in the rubber tire industry, for which unit cost data have recently been published by the Office of Temporary Controls.[55] In that study, comparisons were made of unit costs, broken down in considerable detail, between "four large manufacturers" and ten other manufacturers, the study covering most of the industry's producers. Comparisons were made for four different sizes of tires in two different periods—November, 1941, for natural rubber tires and August, 1943, for synthetic rubber tires. In other words, eight different comparisons are presented, contrasting the unit costs of the Big Four with those of smaller producers. The detail in which the data are presented is illustrated below for the most widely selling type of tire in 1943—the 600-16 four-ply, synthetic rubber passenger car tire.

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[54] *Wholesale Baking Industry* (Federal Trade Commission), Part II, 1946, p. 131. The above table was specially prepared from the primary data collected in the preparation of the report.

[55] *Survey of Rubber Tire and Tube Manufacturers* (Office of Temporary Controls, Office of Price Administration, Economic Data Analysis Branch), No. 10, OPA Economic Data Series, 1947.

SYNTHETIC RUBBER TIRES
Unit Costs, in Dollars Per Tire, of 4 Large and 10 Other Manufacturers
August 1943

	Cost Per Tire		
	10 Manufacturers	4 Large Manufacturers	Total 14 Manufacturers
Size 600-16 4-ply passenger car tire:			
Direct material	$4.348	$4.048	$4.262
Direct labor	.996	.867	.959
Net waste	.145	.168	.152
Factory overhead	1.605	1.629	1.612
Total factory cost	7.094	6.712	6.985
Warehouse and shipping expense	.092	.224	.130
Transportation	.265	.395	.302
Adjustments*	.260	.231	.252
Selling, general, and administrative expense	.938	1.587	1.123
Total cost	$8.649	$9.149	$8.792

* Allowance for defective tires sold by trade.

The basic conclusions to be drawn from this table generally apply not only to this one type of tire but to the other seven as well.

Briefly, the lower costs of the smaller companies in net waste, factory overhead and the indirect items, particularly in selling, general and administrative expenses, enable them to show lower total unit costs in each of the eight comparisons, despite the great advantage gained by the Big Four in direct materials costs. The following table shows, in percentage terms, the extent by which the actual total unit costs of the Big Four exceeded those of the smaller companies for each of the eight types of tires. It also shows the extent by which the total

Percentage by Which Total Unit Costs of Big Four
Exceeded Those of Smaller Companies

	Actual Costs	Assumed Identical Materials Costs
Natural Rubber Tire (November 1941)		
600×16 4-ply passenger	10%	13%
600×16 6-ply truck	8	12
700-20/32×6 10-ply truck	7	13
750-20/34×7 10-ply truck	14	18
Synthetic Rubber Tire (August 1943)		
600×16 4-ply passenger	6	9
600×16 6-ply truck	9	11
700-20/32×6 10-ply truck	10	14
750-20/34×7 10-ply truck	21	23

unit costs of the Big Four would have exceeded those of the smaller companies if the Big Four had paid the same direct materials costs as the smaller companies.

Additional information on this question of the relationship between efficiency and size of company is provided by a recent study of unit costs in the fertilizer industry, conducted by the Federal Trade Commission. In this study, unit cost data were collected, on a company basis, for mixed fertilizers and superphosphates.

Although both are parts of the general fertilizer industry, these two fields represent separate and quite dissimilar types of production processes. In the mixed fertilizer industry, the production process is a fairly simple one of combining active fertilizer ingredients—phosphate, nitrogen, and potash—with inert fillers in such a way as to obtain various grades of mixed fertilizer ready for application to the soil. In contrast, the production of bulk superphosphates is a primary process, involving the extraction of phosphate from the basic raw material of phosphate rock, and requiring expensive capital equipment.

The data for these two fields, which, unfortunately, cannot be broken down into any finer detail than "total production costs," are presented below.

Total Unit Production Costs in the Fertilizer Industry
1941–42 Average

Company Size Group*	Mixed Fertilizer (per ton)	Bulk Superphosphate (per ton)
Over $10,000,000	$16.41	$8.30
$1,000,000–$10,000,000	17.09	8.12
$500,000–$1,000,000	15.96	9.49
Under $500,000	17.52	10.78
Average	$16.68	$8.45

* In terms of annual sales.

The interesting conclusion to be drawn from the above table is that in neither of these two highly dissimilar fields are the largest size groups the most efficient. In the mixed fertilizer field, the lowest costs are to be found in the next to smallest size group—companies with sales of from $500,000 to $1,000,000. And even in the bulk superphosphate industry, with its much greater capital investment, the lowest costs are to be found in the second size group—companies with sales of from $1,000,000 to $10,000,000.

In summary, the evidence of profits before and after consolidation compiled by Dr. Dewing, the comparisons of output per man-hour between consolidated enterprises and independent firms made by the

National Industrial Conference Board, and the recent unit cost data in the bread, rubber tire, mixed fertilizer, and superphosphate industries would strongly suggest that the large plural-unit corporate enterprises are, if anything, less efficient than smaller concerns. At the very least, the widely-held assumption that the ownership and control of plural production units by single corporate enterprises contributes to efficiency would seem to rest upon an overwhelming absence of supporting facts. The only noticeable gain achieved by these large corporations is in the purchase of materials, which undoubtedly results more from their superior buying power than any technological or managerial efficiency.

While certainly not conclusive, this evidence would suggest that if the new capital-saving techniques do lead to a significant decentralization of productive units, such a trend should certainly be accompanied by a decentralization of ownership and control, since there is no basis for assuming that the decentralized units would be operated more efficiently as parts of large plural-unit corporations than as independently-owned enterprises.

Summary. The generalizations which may be drawn from this paper and the specific qualifications relating thereto may be explicitly summarized as follows:

1. The long-term, general, and pervasive increase in plant size throughout most industries has come to an end.

This generalizations is subject to the qualification that part of the further increase in plant size which occurred in World War II may be retained indefinitely.

2. Not only has this long-term increase come to a halt, but it appears that as a result of new decentralizing techniques in the fields of power, material, machinery, and transportation, technology is now tending to promote a smaller rather than a larger scale of operations.

This is subject to two qualifications:

a) There are undoubtedly many important industries, particularly those using such productive methods as the continuous process, which will not be materially affected by these new techniques. This would imply the existence of a sort of "mixed economy," with the scale of operations declining in many industries, but remaining relatively constant in others.

b) It is not possible to evaluate the true importance of the decentralizing techniques. Any statistical measure of their importance, even if available, would be of little value, since the adoption of these techniques will depend in part upon future improvements and refinements. To this observer, the techniques appear quite significant. To others they may seem to be of minor importance. And time itself may not reveal their true potentialities since their adoption may be held back by the nontechnological, institutional barriers of monopoly controls and lack of financial aid for small business.

3. Inasmuch as the available data fail to indicate any greater efficiency on the part of the large, plural-unit corporations, any decentralization of productive units which takes place as the result of the operation of these new techniques should be accompanied by a decentralization of ownership and control.

This generalization is subject to two qualifications:

a) The data are insufficient. Admittedly, this is true; but it must also be recognized that the data presented on the relationship between efficiency and size of company are certainly more than negligible, and all of them point to the same conclusion.

b) The generalization does not set forth the extent of this potential decentralization of ownership and control. The answer to this question will, of course, depend in large part upon the importance of the new techniques and the resulting decentralization of operations.

4. Finally, these new techniques, by shifting the point of diminishing returns toward smaller size, will tend to resolve the inconsistency which has long existed in economic theory between the struggle for greater efficiency on the one hand and the maintenance of competition on the other.

This is subject only to the qualification of extent. These new techniques will necessarily have the effect of shifting the point of diminishing returns toward smaller size. The only question is whether or not they will be sufficiently important to shift the point below any size associated with monopoly. This again is the question of the importance of the techniques.

COST STRUCTURES OF ENTERPRISES AND BREAK-EVEN CHARTS

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I. *Introduction*

One of the important practical uses of empirically determined cost functions is to project the impact of output rate upon profits by means of a break-even chart. In recent years break-even charts have come into wide use by company executives, investment analysts, labor unions, and government agencies. The purpose of this paper is to appraise the reliability and usefulness of this alarmingly popular gadget. Primary attention is given to the validity of its profit projections, but its usefulness for price determination and expense control is examined briefly as well.

We shall consider, first, the nature of break-even analysis; second, its limitations; third, its principal contributions; and, fourth, ways to make this kind of analysis more useful.

II. *Nature of Break-even Analysis*

A break-even chart is a diagram of the short-run relationship of total cost and of total revenue to rate of output. These relationships should be conceived of as static. The total cost function, like its parallel in theory, is drawn on the assumption of constant factor prices, plant scale and depth, technology and efficiency. The total revenue function assumes selling prices and product-mix unchanged.

The spread between these two lines defines the profit function, which is the empirical counterpart of the short-run relationship between profits and output rate, with traditional constancies. This family of conjectural income statements is more important than is indicated by the name "break-even chart," which places unfortunate emphasis on the zero-profit member of the family.

Break-even analysis (which will refer not only to the presentation device, but also to the basic relationships themselves and the methods generally used to determine them) produces flexible projections of the impact of output rate upon expenses, receipts, and profits, assuming other things equal. It thus provides an important bridge between business behavior and the theory of the firm. If determination of this profit-output relationship will produce reasonably accurate predictions, then break-even analysis has considerable significance for economic research and public policy, as well as for investment analysis and company management.

Most break-even analyses are based on the concept of static cost and revenue functions, but they differ in attainment of this ideal. At one extreme are charts which involve an all-out attempt to remove dynamic influences. In statistical studies this is done by rigorous sampling, deflation, lag corrections, multiple correlation, and other statistical refinements.

At the other extreme stands the "migration-path" break-even chart which is developed from annual data that cover a long period of years, with no correction for the substantial changes that have occurred in dynamic factors such as prices, efficiency, technology, and plant. Output is measured by sales volume in current dollars rather than by an index of physical production. A sort of dynamic total cost function, which appears to be linear and which often shows only moderate scatter, has been obtained for many enterprises. Sometimes subgroups of consecutive years show different lines of fit. The result is not a static total cost function but a movement-path on a series of shifted static functions.[1] A possible explanation for the linearity of this path is cost-plus formula pricing by the enterprises studied. A sort of dynamic profit function can also be determined directly by correlation of historical profits and output, with constancies abandoned. Scatter diagrams of this sort are used in investment analysis.

Break-even analysis should be distinguished from two other managerial tools: flexible budgets and standard costs. The variable expense budget is built on the same basic cost-output relationships, but it is confined to costs and is primarily concerned with the components of combined cost, since the purpose is to control cost by developing expense standards that are flexibly adjusted to activity rate. This purpose often leads to measures of activity that differ among costs and operations, so that they cannot be readily added or translated into an index of output for the enterprise as a whole. Standard costs, on the other hand, are quite foreign to break-even analysis. Typically, they are unchanging unit costs, which are used as expense goals or as a substitute for current unit costs. The analysis of departures of current costs from standard cost usually attempts to segregate the variance attributed to rate of activity (as well as that due to other causes). This analysis of variances involves some knowledge or assumptions concerning the basic relationship of expenses to rate of utilization.

III. *Limitations on Profit Projections*

For profit forecasting the static break-even chart has serious limitations which its users have frequently ignored. These limitations arise from four general sources: errors of estimating the true static cost function, oversimplification of the static revenue function, dynamic forces that shift and modify these static functions, and managerial adaptations to the altered environment. Awareness of these sources of error can improve the analysis and sharpen interpretation and application of the resulting projections.

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[1] The pioneering work of Walter Rautenstrauck is an example of this sort of analysis. See his *Economics of Enterprise* (John Wiley & Sons, Inc., 1939), Chs. VI and VII.

A. *Determination of Cost Functions*

The principal problem area of break-even analysis is empirical determination of the enterprise's cost curve. Typically the static cost function has not been established with much sophistication or precision. Since profits are residuals, the profit function gets the full impact of these inaccuracies. To understand the nature and importance of this source of forecasting error let us see how successfully break-even analysis has solved the chief problems of empirical cost determination; namely, measuring cost, measuring output, matching cost with output, holding other things constant, and finding functional relationships.

Measuring Cost. Enterprise cost data are largely the by-product of the requirements of financial accounting. They are therefore collected, classified, and apportioned under fairly rigid conventions which impose serious qualifications on the meaning of the resulting cost and profit functions. Errors from this source are of three types: exclusion of imputed cost, wide discretion in the timing of semi-investment expenditures, and valuations and allocations that are necessarily arbitrary.[2] Thus, the profit function is a mixture of interest, rent, and economic profits; it usually includes inventory value gains, which are nonrecurrent; and it is probably today inflated by a serious understatement of capital wastage arising from prospective replacement values that are now far above original cost.

The inclusion of selling costs also impairs the accuracy of the estimate of total cost, and this makes profit prediction more unreliable. There is no necessary functional relation between output and costs incurred to modify the firm's demand curve. Selling activity may remain substantially constant yet the demand curve may shift with fluctuations in national income and tastes. Moreover, there is much latitude for manipulating the amount and timing of many kinds of selling expenditures.

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[2] Valuation errors can be serious in a period of rapid rise in the price level. Valuations based on cost depart seriously from replacement value. This gives rise to inventory gains which, unless removed, magnify and distort the cost and profit functions. Rising prices also cause understatement of depreciation, assuming that prices will be higher than the purchase level at the end of economic life of the equipment.

Allocation errors arise from the necessarily arbitrary proration of common costs among operating units, and the allocation of capital wastage over time periods. Depreciation is a good example of the problems of time-allocation. When, as is common, depreciation is recorded as a straight-line function of time, it is treated as a constant cost and is thereby excluded from the estimate of marginal cost. The amount of error from this omission depends on the extent to which obsolescence exceeded the loss of value due to use deterioration, that was not made up by properly recorded maintenance.

A high correlation between output and selling outlays does not necessarily mean a stable or meaningful relationship. To be sure, some selling costs, such as salesmen's commissions, may be a function of sales. But sales may depart from current production for short periods, so that even these expenses may not be related to output. When the advertising appropriation is determined by mechanistic standards (e.g., *x* per cent of expected or past sales) this expense is often projected as proportionate to output. This is not, however, evidence of a true functional relationship. Output may depart from history and from forecasts without causing changes in the advertising plan or commitments. Moreover, the effect of advertising will be spread indeterminately over future output as well as present.[3]

Even the empirical production cost function is likely to be somewhat nebulous in a large enterprise because of disparity among constituent plants. Typically, plants differ considerably in size, technology, factor prices (due to geographical variation), and other locational advantages. For example, a large gypsum company has geographically scattered board mills which embody the history of various stages of technical advances and which also differ in scale, in depth, and in wage rates and material prices. These plants form a hierarchy in respect to marginal cost and average unit cost. The costs associated with a specified company-wide output rate are thus a composite of the costs of those mills which are operated at that time. Since it is not possible to move up the cost hierarchy as output rate expands, because of the uncontrollable geographical distribution of demand, cost will not be the same for any given composite output rate.

Measuring Output. Perhaps the most difficult problem of empirical cost research is to get a good index of output for a multiple-product plant with variable product mix. A specially constructed index of physical output with weights based on inputs at constant prices is usually the best solution.

Output indexes used in most break-even analyses are not very satisfactory. Sales volume in current dollars is generally used. This kind of index, which weights diverse products in ratio to selling price rather than to inputs, is unreliable if articles differ in contribution-margin[4] and if the product-mix varies. It is also erroneous if selling prices change during the analysis period.

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[3] Even when budgeted as a fixed percentage of expected sales, much advertising should be treated as a fixed cost, since once the advertising plan is established its total is unaffected by the actual output rate of the period. Better still might be to view some advertising as a capital investment, since benefits stretch into the future, and there is wide discretionary latitude in its timing.

[4] Contribution margin is the difference between price and marginal cost. It can be approximated often by price minus traceable (direct) cost.

The use of sales (in properly weighted physical units) rather than production to measure output is satisfactory only if selling is the dominant activity of the firm, or if the production and sales rate are closely synchronized. Otherwise serious error is introduced, particularly if the analysis period is short. Normally it is better to measure activity by production, and to reconstruct any expenses that are a function of sales or orders, on the assumption the output is sold in the period produced.

Activity is sometimes measured by input, such as direct labor hours. Through-put of crude oil in a refinery is another example. This is a good solution when, as in a refinery, the output is diffused over a host of products whose proportions can be varied over broad ranges. Direct labor is the most common input index. If deflated or measured in hours, this index is satisfactory when the input of other factors, notably material and equalized equipment hours, has about the same ratio to labor hours for various products. Under these circumstances, it amounts to an output index with constant input weights.

Expressing the activity index in terms of a percentage of capacity is common practice. This conversion camouflages but does not solve the problems we have just discussed. Capacity is generally conceived in physical rather than in economic terms. And physical capacity cannot normally be determined accurately.[5]

Theory has viewed economic capacity (defined as the low point of the unit combined cost curve) as considerably less than physical capacity. I doubt that the disparity is great for production costs under modern technology. If total production cost remains linear up to the point of extreme crowding of plant, the two kinds of capacity are not far apart, and probably well within the error range of estimating either.[6]

What benefits come from expressing output as a percentage of "capacity"? This ratio is an easily understood, common denominator for a variegated output; it shows an upper limit and it may be compared over periods when plant size has changed. But these benefits can be obtained by other means. Capacity percentages imply a more rigid and determinable upper limit of output than usually exists. The notion that there is some standard of a safe break-even percentage makes little sense. The peril of a particular break-even point is a function of the probability that output rates will go below it and the probability function for shifts in the firm's demand curve have no logical relationship to its capacity. Thus, little is added and much may be lost by expressing the output index as a percentage of physical capacity.

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[5] Presumably it is based on three-shift operation, even though labor or material shortages limit potential output more narrowly. Moreover the time distribution of demand frequently keeps output far below equipment capacity at stable rates (e.g., electric power). Physical capacity is also affected by operating conditions such as product-mix and how long one is able and willing to defer maintenance. Relatively minor capital outlays on bottleneck operations can, furthermore, expand capacity considerably, so that it may change frequently.

[6] A more meaningful economic concept of capacity in imperfect markets might be the businessman's notion of "all I can sell." This would be the point set by rising marginal selling cost or the limit of the firm's resources for market aggrandizement. This concept has the limitation of being unstable, since it shifts with income and taste and market imperfections. But the orthodox concept of economic capacity is also somewhat variable, with changes in relative prices.

Matching Cost with Output. To find the relation between cost and output the costs must be synchronized with the output to which they contributed. This problem has not been recognized or solved in most break-even analyses. The importance of the resulting error differs among establishments and depends on the length of the record period in relation to the production cycle. A production gestation period of any length results in a recording of costs to some degree in a period earlier than the recording of the output for which they were incurred. Removal of this error is tedious and never entirely satisfactory for short analysis periods. The use of annual data largely obviates the problem but hides important variations of cost and output within the year.

The wide latitude in timing many expenditures also causes errors of matching. Outlays for maintenance and for many administrative and selling activities are properly attributable to past and future outputs as well as that of the current period. Hence true costs associated with any output have a penumbra of indeterminacy. Outlays, however, may be made to have a fairly definite relationship to output by company policy that controls the timing of expenditure. Thus railroad management has often "controlled" maintenance outlays to conform much more closely to fluctuations in traffic than the timing of their true incurrence would justify.[7]

Holding Other Things Constant. The problem of actually obtaining the assumed constancy of plant, technology, methods, product, and prices cannot be satisfactorily solved in workaday break-even chart analysis. Analysis of past cost behavior underlies, in some degree, all empirical cost functions (unless the whole projection is based on engineering conjecture). Yet no past period can be found with the assumed constancy of dynamic factors.

In the empirical work of the economists, chief reliance has been placed on careful selection of the enterprise and the sample period. In normal break-even chart analysis, this kind of sample selection is out of the question. Much use must be made of conjectures that imagine away these difficulties. Multiple correlation analysis has been used with some success in removing the influence of "other factors." But its widespread use in break-even analysis is limited by its expense and unfamiliarity.

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[7] The cost function derived from such expenditures may do a good job of forecasting future expenditures and short-term recorded profits. But even so, profits will differ materially from a concept of "real" profits over the long term. Hence it may be argued that the source of distortion should not be removed since it is the timing of expenditures, not of cost incurrence, that is relevant for expense control and possibly for profit forecasting. But this assumed that the change in output (and other sources of distortion) will always follow the same pattern in arriving at a specified output rate.

In most break-even analyses adjustments for changes in factor prices have not been made carefully or at all. The use of current dollar sales as an output index does not solve the problem. The direct impact of changes in factor prices can be easily removed by tailored index numbers; but indirect influences through substitution among input factors cannot. Rigid limits upon such price-motivated substitutions are, however, imposed by modern technology.

Determining Relation of Cost to Output. Three general types of methods have been used to get the relation of cost to output: classification of accounts; engineering projections; statistical analysis of past behavior.

Classification according to volume variability is the most common method. Expenses are classed as constant, proportionately variable, or semi-variable. Semi-variable expenses are then broken into a constant component and a variable component. Variability is determined largely by inspection and experience.

Engineering projections are the only feasible method for enterprises without usable operating experience or records. Such estimates are usually based on rated characteristics of equipment and on parallelism with other operations.

Statistical analyses cover a wide range of refinement. Rough scatter diagrams of a few uncorrected observations at the extremes of the output ranges are used by some practitioners. Simple correlation analysis of annual cost data, uncorrected for dynamic changes, and of output measured in current dollar sales has also been widely employed. Farther up the ladder of refinement are academic studies which employ all the available techniques of data-adjustment and multiple correlation analysis. Although refined methods of this type cannot be widely used in break-even analysis, visually fitted lines to carefully selected samples of roughly adjusted cost observations should be more widely used to get and to verify relationships of cost components to output.

Linearity of Total Cost. The linearity of the total cost function in break-even charts disturbs many economists because it conflicts with the generalized curves of theory. But rising marginal production cost is not needed to determine the output which would theoretically maximize profits under imperfect competition. Moreover, many meticulous statistical investigations have found the total production cost function to be linear for several enterprises. To be sure, the extremes of the potential output range were not explored, since the samples largely covered operations in the thirties.[8] Had wartime outputs that pressed hard on physical capacity been included, it is possible that the curve would have turned up. Doubtless operations that would crowd capacity to the point of rising marginal production costs are conceivable. The real question, however, is whether they are likely. The cost penalties of superfull production may be so great and so apparent that output in this area is unlikely.

There are severe limitations on the research refinements that are practical for break-even analysis. It is costly to get precise estimates of cost functions by careful research. The error range from cheaper methods is often tolerable practically, particularly when shifts of the cost functions cause estimating errors that are much wider. These shifts often have more practical interest than the function's precise shape, at least over the range of normal operations, for changes in factor prices are dramatic in their impact today and changes in technology and product design often take place continuously.

B. *Validity of Revenue Functions*

The revenue function of break-even analysis holds selling price constant over the range of output, an assumption that is practical for many enterprises because of the inflexibility of selling prices and the existence of an area of price discretion. This departure from the assumptions of economic theory is made because break-even analysis is not concerned with the effect of price or quantity sold, but is confined to projections of the effects on costs and profits of various outputs that result from shifts in the firm's demand function. Analysis of demand is viewed as a separate problem.

The accuracy of a profit projection based on this constant-price revenue line will be impaired by changes in list price, concessions, product-mix, and distribution-channel ratio. Changes in list price call for a new sales line which alters the profit function and the break-even point. Changes in price concessions, which in some industries are great and are likely to be correlated with output, will also vitiate the profit forecast, and are harder to allow for.

Changes in the composition of demand impair the accuracy of the static sales line and may vitiate the profit projection. Whenever products differ in contribution margin and there is variation in product-mix from period to period, profits will vary at a given output rate, if output is measured by an index that is appropriate for getting a production cost function. Under these circumstances, the constant-price sales line is inaccurate, even as a static function. Two different combinations of products that are equal in amount as measured by the output index will not yield equal revenue. Only by measuring output in current sales dollars can total revenue be a single valued function of output. But if this is done, cost will not be the same for output of different product composition.

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[8] The range of output sampled looked wide in terms of the ratios of its high to its low and in terms of the experience of the preceding decade. Moreover, at least under "normal" conditions, imperfections of the market and rising marginal selling costs usually set limits on output considerably short of physical capacity. Differential and overtime pay, which might cause marginal cost to rise if not removed as factor-price changes, were not significant in my published studies.

Changes in the proportion of output that goes through the various distribution channels has serious effects in some firms, where the contribution margin differs greatly among channels (for example between original equipment and retail dealer sales of automobile accessories). The channel-proportion is often neither stable nor precisely correlated with output.

One way out of these difficulties that I have found helpful is to set up a family of revenue lines, each one applicable to a specified product-mix and distribution-channel ratio.

C. *Dynamic Forces*

Dynamic forces impose added limitations on profit projections from static and partial cost and revenue functions, however accurately determined. Concentration on short-run cost functions has led to neglect of other elements of the cost structure of the enterprise. Changes in factor prices, technology, and scale and depth of plant, shift and modify the static cost function. These changes take place continuously and their impact is intertwined so that it is normally not possible to separate them empirically from short-run adjustments.

The distinction between short-run and long-run cost, for example, is continuously blurred. Conceptually, the basis of the distinction is the degree of adaptation of cost to output rate. This conventional dichotomy of long run versus short run should be expanded in theory to envision a whole family of cost curves that differ in the degree of adaptation, with the conventional long-run cost curve as the limit of perfect adaptation. Adjustments to higher output take a variety of forms short of adding an entire balance plant unit. They represent jumps from one short-run curve to another, not just movement along one curve.

The relation of technology to cost behavior is also more subtle than implied in theory. Changes in scale, in flexibility, and in management methods are often all represented in a single technical improvement.

These dynamic changes in costs and selling prices are likely to be highly correlated with the firm's output. This will reduce the reliability of forecasts of profits that are based upon assumed independence. A single company's volume decline is not likely to be independent of a downturn of a general business activity. And it is improbable that management's adaptation to this changed situation would produce an output-expenditure pattern just like that produced by the operating plans of today's volume expectations.

Break-even analysis is virtually useless for some firms. This is particularly likely when materials that fluctuate widely in price are a predominant cost, when the product-mix varies greatly and profit margins differ among products, when advertising or sales promotion are important and highly shiftable, or when the product design or technology changes continuously over short periods.

D. *Profits Controllable*

Profits in modern enterprise are not as purely passive as economic doctrine implies. Profits are controllable by management to an important degree. Costs are more reducible and manipulable than economists have recognized. Profit maximization in the short-run sense is seldom the dominant objective and the pressure for efficiency is not, as assumed in theory, constant and always sufficient. It varies dramatically over the cycle and with the fortunes of the firm. There are, therefore, significant fluctuations in the intensity of the compulsion to attain the least cost combination. Top management of a major railroad estimates that two years of systematic indoctrination at all management levels will be required to get the efficiency drive back to the prewar level.

This can affect costs because there is much room for improving efficiency in even the best managed concerns, and because a wide area of uncertainty exists as to the least cost combination for specified conditions of output, factor prices and technology. For example, the methods for determining economic lot size differ greatly and cannot all be best.

Another condition that makes reported profits significantly controllable has been mentioned; namely, the wide time latitude that exists in the incidence of real cost upon expenditures. Important parts of production, selling, and administrative expense relate to past or future output and can be postponed over long periods.

Price jurisdiction provides another means of controlling profits. Big business under monopolistic competition does not continuously set prices to maximize profits in the short run. There are many indications that prices in many industries are lower than would be most profitable today. In many companies prices that were high enough to retain the prewar break-even point would put profits so high at current output rates that they would have serious consequences for public and labor relations. The postwar shift in the profit function is probably due in large part to the changed relation of cost prices and selling prices. A rise in break-even point frequently indicates that price advances have not kept pace with shifts in cost.

This controllability of short-term profits means that the empirical profit function is less reliably determined and forecasted and has less economic meaning than has been supposed. It also suggests that a doctrine of respectable profits should replace our notions of a continuous and uniform drive to profit maximization.

E. *Summary of Limitations*

The projection of the short-run, static profit-output function of break-even charts is not a reliable forecast of future profits. The break-even point indicated by charts presupposes continuation of today's relative prices and expenditures patterns. Hence, it does not accurately forecast the probable future break-even point in the event of a business decline. A break-even chart is an oversimplified analysis of expected profits at various levels of output. The basic premise that profit is a single-valued function of output is wrong. Profit will, of course, vary with changes in output; but it also will vary with changes in production plans and in the intensity and kinds of selling efforts. The profit function will also be buffeted about by the vast impersonal forces of the market. Hence, at best, any single break-even chart can only show profit expectations under a single set of assumptions regarding external market conditions and internal management strategy.

In typical break-even analysis, the static cost function has not been determined with much precision. Concentration on short-run cost functions has led, moreover, to neglect of other elements of the enterprise cost structure, which impairs the accuracy of projections of the short-run cost function. Changes in the composition of demand and in costs and in prices are, moreover, likely to be highly correlated with the firm's output. Despite rigidities of prices and of wage rates, a decline in general business activity will shift the functional relationships that were presumed to be independent.

IV. *Usefulness of Break-even Analysis*

The empirical short-run profit function has more stability than the foregoing discussion of its limitations might imply. One reason is that shifts in the cost function tend to be accompanied (with some lag) by similar changes in selling prices in many imperfectly competitive enterprises. This is partly the result of the use of cost plus formulas to set and adjust prices. Another reason is that the pressure for efficiency is intensified in periods of adversity. The controllability and postponability of expenditures can in some degree compensate for uncontrollable shifts in selling prices and stickiness in factor prices.

Under modern competitive conditions, selling price and the intensity of selling efforts are not normally adjusted frequently to short-term shifts of the firm's demand. Hence the assumptions of constant selling price and essentially passive selling cost adjustments are more realistic and useful for shortrun adjustments under normal conditions than economic logicians might think.

Contributions to Economic Analysis. Break-even analysis can make solid contributions to the development of enterprise economics. The importance of fixed costs makes total cost and profits vary significantly as a function of output rate. Projections of this short-run relationship can be useful. Break-even charts and flexible budgets have been responsible for a vast amount of inductive investigation of the short-run cost and profit functions which dwarfs the pitifully few empirical studies made by economists.

This kind of analysis can also provide insight into the bases of business decisions which should lead to re-examination of come tenets of received doctrine. For example, it provides added evidence that cost behavior patterns in a modern enterprise differ in important respects from the theoretical model, that knowledge of these behavior patterns by management is far less precise than assumed, and that the things maximized by business executives may differ greatly from theoretical assumptions.

Managerial Usefulness. Ambitious claims have been made concerning the managerial usefulness of break-even charts. They include not only in profit projections but also expense control and price determination. For these added purposes, as for profit projection, the limitations discussed above impair but do not destroy its usefulness.

Empirical cost functions can be highly useful for expense control. But for this purpose they must deal with components of cost, and should be confined to those costs that are controllable at each area of responsibility. Although this kind of flexible budget may be built up to a break-even chart, it is not a by-product.

Thus conceived, the break-even analysis no longer concentrates on the break-even point or on a single static profit function. Instead, it provides a flexible set of projections of costs and revenue under expected future conditions and under alternative management programs. Profit prediction under these multiple conditions becomes then a tool for profit making.

DISCUSSION

Kenneth E. Boulding: I would like to make three points, mainly in connection with the theoretical aspects of this problem.

First, some tentative inquiries into the anthropology of engineers convinces me that the problem of the size of the firm in many cases is dominated by the discontinuities in the factors which have to be combined in the productive process. The engineer is almost obsessed with discontinuity; the economist perhaps too much wedded to his continuous cost and revenue curves. The problem of an entrepreneur may be more that of fitting together an awkward jigsaw puzzle rather than that of equating differential coefficients (e.g., marginal cost and marginal revenue). We have not developed adequate analytical techniques for dealing with the "jigsaw" problem—the fitting together of pieces of different shapes and sizes—and something of the unreality in our theoretical apparatus results from this lack.

Secondly, the problem of the size of the firm seems to me to be essentially dynamic in character, and the "static" cost and revenue curves cannot in themselves give us a solution. Marshall recognized this problem in his analogy of the "trees of the forest." His solution—the "representative firm" concept—was too vague to be of much use, but his successors have given no better answer to the problem which he raised. The size of the firm is determined by the point in time, or the age, at which a firm ceases to grow. The forces which determine this point, and the age at which it is reached, are by no means clear. I belong to a small consumers' co-operative which has grown continuously *because* of the losses which it has made. Every year the gloomy financial report leads to heart-searching among the members, and the answer never fails to emerge: if only we were a little bigger, and had a bigger store, or a frozen food counter, or a meat department, or some other addition, all would be well. So each year a drive is put on to raise more capital, get more members, and the enterprise grows. One is reminded of Toynbee's "challenge and response": perhaps the greatest stimulus to growth in some cases is small losses—a situation very far from that envisaged by most theorists! It is evident that we need to investigate further the forces making for growth, especially the nature of responses to unpleasant as well as to pleasant experiences. We need also to investigate what might be called the "sociology" of the capital market: the condition under which a firm can expand its asset structure and the conditions under which it cannot.

This brings me to my last point: that economics by itself cannot solve this or any other problem. It may very well be that there is no such thing as "dynamic" economics: that when we study the growth and decline of economic as well as of other organisms we shall find that the forces concerned fall within the province of sociology and psychology rather than of economics. I take but a few examples. How important are "personal connections" in obtaining capital? How important is the "prestige value" of growth and of size? How important is the fear of public opinion, of potential competitors, of political and governmental pressures? How important is the "Napoleon complex"—the desire, or the distaste, for power? These and related questions are clearly relevant to our problem, yet they are not strictly within the purview of the economist.

W. BLAIR STEWART: In his interesting and provocative paper Dr. Blair has addressed himself to problems of fundamental importance to our modern economy. The technology of any society has much to do with the organization of economic life. Although economic institutions may not be *determined* by technology, it is certain that technology creates many of the situations with which economic institutions must deal. For generations economists have been embarrassed by the fact that the abstract world of a purely competitive general equilibrium and the actual world of economic realities are uncomfortably far apart, and seem constantly to be getting further and further apart.

In the abstract, economists have developed a rationale for the allocation of productive agents in which existing institutional arrangements could be counted upon to perform fairly satisfactorily, especially if public policy were to follow certain easily discerned paths. Given a few simple assumptions with respect to the productive process, the market mechanism could be relied upon to allocate productive agents adequately, and public agencies could devote themselves to the preservation of conditions favorable to the satisfactory operation of the market mechanism, and, perhaps, to the adjustment of the distribution of the output of the economic system in directions more nearly in accordance with desirable standards of social ethics—taking care to see to it that such alterations did not interfere with the proper allocation of productive agents. But the assumptions on which this system is based—the assumptions of firm capacities small in relation to the size of the market, of discriminating appreciation of quality variations by purchasers, and of undifferentiated products—have always been unreal for the major part of our productive activity; and changes in the economic structure—due largely to advancing technology—have tended to make them more unreal. The embarrassing part of this situation is that although through the development of more adequate descriptions of the market process in terms of monopolistic competition and oligopoly, we have come to understand the actual institutional arrangements of economic life more fully, we have been unable to suggest satisfactory institutional alterations which would be effective under these conditions in producing an allocation of productive agents which can be defended on rational grounds. The public utility approach, "a fair return on a fair valuation," certainly does not achieve this end. Whether widespread socialization of industry may do so we may perhaps learn in the next generation or so as the result of developments on the other side of the Atlantic. But if technology is now to reverse its course and lead to small-scale industries more nearly in accordance with the presumptions of the competitive market, we may hope for improved operation of the market in its basic allocating function, and incidentally economists may look forward to a few shreds of raiment to replace the transparent balloons which tend to emphasize rather than conceal our present intellectual nakedness.

Dr. Blair describes very well the technological developments which in the course of the nineteenth century and part of the twentieth have resulted in the development of large-scale industry. He comes to the conclusion that in manufacturing as a whole this process "came to an end during or shortly after World War I." This conclusion is based in part on statistical analysis and in part on the consideration of recent technological trends.

In his statistical analysis Dr. Blair makes use of number of wage earners as the measure of size. But he tends to characterize the earlier technological developments as "labor saving" and more recent developments as "capital saving." This would seem to rule out either number of workers or capital as measuring devices. If technology is saving labor, it is reducing plant size measured by this standard even if by all other standards plant size is remaining the same or increasing. Indeed he cites as an example of a recent technological development of the laborsaving type the continuous strip rolling mill which, he says, "can reduce the labor force per ton of capacity by as much as 95 per cent." A further illustration of the inappropriateness of number of workers as a measure of size is the plant for the production of pig aluminum which was completed by the Aluminum Company of America at Vancouver, Washington, in 1940. This plant cost 17 million dollars, and was capable of producing an amount of aluminum equal to 38 per cent of the output of the entire United States in the year it went into operation. The figure for the number of employees at this plant announced in the newspapers was 600, and it seems safe to assume that it has never qualified as a large-scale plant in terms of the criterion of 1,000 employees.

It would seem that the most suitable measure of plant size would be one based on the proportion of the market which the plant is equipped to supply. The great difficulty of fashioning such a measure and the lack of the information necessary to apply it should not deter us from trying to determine the direction and the order of the error in such measures as we do use. I assume that in the conventional division of labor by which the authors of papers build glass houses and those who discuss them throw brickbats, it is no part of my function to undertake these tasks in this case.

Dr. Blair argues convincingly that a number of recent technological developments work in the direction of increasing the relative efficiency of small-scale plants. If his point is merely that such tendencies exist and are important, his point is well made. If we are asked to accept the conclusion that these tendencies are sufficient to overcome the continuing pressures toward large-scale production from earlier technological developments and from new technologies which move in the same direction, the case is not so clear. It may be asked in particular whether the catalogue of recent technological developments is comprehensive enough to give a balanced picture. The decentralizing effect of the electric motor is made clear. But do recent developments in the electrometallurgical and electrochemical fields work in the same direction? It is true that many of the plants in such industries are small-scale measured by numbers of workers. The aluminum plant already cited is a case in point. Another illustration is an electrochemical plant which is the only supplier of certain chemicals in a large geographical area, which cost a million and a half dollars, and is operated on a continuous basis 24 hours a day, 365 days a year with a pay roll of 42 persons. In terms of the market served this is a large-scale plant. But if a thousand workers is the measure, it is extremely small scale. It would be worth while to find out how general situations of this kind are in these rapidly developing industries.

It may be remarked, incidentally, that the current tendency to look on manufacturing plants which cost a million dollars or more as small-scale operations indicates how far we have strayed from the original conception of atomistic competition and freedom of entry.

In general the burden of Dr. Blair's case for the decentralizing effect of recent technology seems to imply merely the more general application to industrial processes of technological advances already made. Less articulate, but none the less implicit in his position, is a theory of technological progress in which the laborsaving innovations of an earlier stage are superseded by capital-saving, decentralizing innovations at a later stage. The nature of technological evolution is, of course, of basic importance to the problem at hand, but the reliability of prediction in this field at the present time is almost certainly very low. Dr. Blair mentions with some enthusiasm the possible decentralizing effects of atomic energy. But the plants producing fissionable materials are certainly large by any measure of scale, and it is very hard to visualize at all clearly the nature of the industrial transformations atomic energy is likely to bring forth in the long run.

There is finally the question of the relation of optimum scale of plant to optimum scale of company, and more specifically the relation of technological development to this problem. In this connection two points deserve further consideration. The first is the extent to which the large company has an advantage in utilizing the process of technological development to maintain and even improve its position in a given field. Our patent laws play an important role in this connection. While they are subject to change, the modifications necessary to equalize the positions of all comers cannot be easily fashioned, and it would be even more difficult to get them enacted into law, and to assure administration of the law in such a manner as to achieve the desired end. A related problem is the advantage the industrial research laboratory gives to the large company which can maintain a position of dominance by devoting a relatively small proportion of its gross income to such activities.

Technological development may serve to improve the position of the large company in still another way. Is it not possible that the development of the radio and the dominance of the network program has made available to the large company a means of product differentiation which is inaccessible to the smaller firm? If as a result the large firm is able to sell at a higher price, or to enjoy a more secure market position, has not technology made a significant contribution to the continuation and even growth of the large enterprise? Empirical investigations designed to contribute to our knowledge in this area must give attention not only to production costs but to selling costs, and to associated price relationships. It is only by adding the analysis of these factors to our study that we can reach valid conclusions as to the survival value of the large company. And the company is certainly a more significant unit than the plant if we are concerned with market behavior.

HENRY B. ARTHUR: Mr. Blair has made a real and important contribution in bringing together evidence which supports the general thesis that the basic changes in technology over the last several decades have led in the direction of smaller plant units. This is a reversal of the trend which was traditionally associated with the earlier phase of the industrial revolution which had led many economists to fear that technological change and mass production were anatomically related to the octopus.

We should remember, of course, that we are living in an economy in which it is a long way from the raw material to the consumer. Except for the air we breathe and the dirt our children play in, the cases are relatively rare in which anything we touch has not been moved or processed by others. The intermediate steps between the contributions of nature and the delivering of ultimate consumer satisfactions can be thought of in terms of distance, of processes, or of time. The growth of technology changes the design of the bridges which span these distances to give us utility of place, of form, or of time. They become smaller bridges, demountable and flexible. It is particularly gratifying to note that we are making continuous improvement and, at the same time, increasing flexibility in performing these tasks.

It seems to me that one point which Mr. Blair's paper failed to stress was the fact that all of these changes open up to the consumer, processor, and worker an ever widening set of choices. This is part of the very heart of our competitive system because workable competition requires that each buyer and each seller have access to alternative means of satisfying his needs and that each have freedom to choose, freedom to accept or reject any particular proposition.

It does not seem to me that Mr. Blair has indicated in the part of his paper which deals with the subject of decentralization of ownership and control many of the answers as to why we find ourselves where we are. Nor does he inquire very much into the question of whether our present situation is good or bad. He simply assumes it is bad to have any degree of "centralized" ownership or control. His paper states simply that "there is no basis for assuming that the decentralized units would be operated more efficiently as parts of large plural-unit corporations than as independently-owned enterprises." I assume there is some size which he would regard as acceptable—perhaps he would be in favor of ownership and management units confined to the single plant. He seems to have overlooked the economic discussions of optimum size in management, marketing, and financing to which many authorities have given attention; for instance, E. A. G. Robinson in his book, *The Structure of Competitive Industry.*

There must be some reason behind changes that occur in the size of proprietary or management units in our economy and I think what Mr. Blair was looking for was some law of growth which would assure him that our management units were not all potential ogres whose aim in life is that of gobbling up his lesser fellow ogres with the ultimate prospect that the entire population will become subject to an ogre-opoly. Personally, I feel the trend toward centralized controls by government presents problems of bigness in management which are more likely to change our competitive economy than is the growth of business firms. In the case of business organizations, it is my feeling that the danger was recognized over fifty years ago and has been pretty well checkmated in recent years by the forces of public opinion and by more enlightened business policy as well as by antitrust activities of the government.

This ogre-opoly, as I have facetiously called it, is nevertheless a fair enough hypothesis to be worth testing. But the test should be broad enough so that we include all of our economic agencies, including for instance governmental and labor organizations as well as the individual business firm.

In looking over some of the experiences of our industry—meat packing—it has been possible to see something that resembles a normal "law of growth." I am using the term very loosely to describe the pattern of size differences between firms. I do not know that I can describe all of the characteristics of this phenomenon—the industry is a complicated organism. However, we see every year new firms starting in business and growing at varying rates of speed until they attain very substantial size. We see others stabilized in size at differing levels of volume. Still others are moving downhill.

It is one of the characteristics of the meat packing business that there is complete ease of entry into the industry. It is said that any man with a truck, a rope, and a knife can become a meat packer over night. And we found this was just about true during the OPA days. There are other members of our industry who operate retail stores and may slaughter only a few head of livestock a week. Sometimes farmers, also, perform this sort of service on a small scale. The retailer can build his business to the point where he acquires a small slaughtering building, possibly a frozen food locker plant and other facilities. And he may be the most efficient channel for the processing and marketing of the livestock he handles, since the supply available in his area may not be sufficient to justify any larger-scale operation. If he lives in a deficit area with respect to meat, there is no point in shipping the livestock away and hauling meat back in. There are thousands of businesses of this kind which a larger firm could not possibly drive out of business, and an absentee management could probably never afford the overhead required to run the establishment.

When meat packing plants expand and sell in a somewhat larger market, there are still innumerable cases where thriving, prosperous businesses, giving specialized service to their customers, survive any competitive threat so long as they are well managed. These firms may supply a metropolitan or regional market. They are small enough to be able to ignore seasonal variations in livestock marketing; they operate at a steady capacity rate. They can buy special lots of animals to take care of particular customers, and the executives can, as the trade saying goes, "carry a lot of their business in their hat."

The largest firms in the meat packing industry are pretty much specialists, too. They specialize particularly in the long-distance business, the movement of meats and other products from various national areas of surplus production into the areas of deficit. They tap the various parts of the national market. They give lamb consumers in New York direct access to the surpluses which may be coming to market from the early California lambing season at one time, from Texas at another time, from Kentucky at another, from Idaho and Colorado at still another. Similarly, they give the Iowa hog producer an outlet for his pork which will take advantage of the best geographical demands for differing weights or cuts of pork, different classes of processed product, and so forth, wherever the best market exists.

In performing such functions Swift & Company has followed the plant decentralization trend which Blair has described. I think this adds up to an answer to the question of size of firm, in our industry at least. It is my belief that there are healthy units of many different sizes and that there are conditions under which each size of ownership or management unit can prosper and perform efficiently. A large company like Swift & Company could not, even if it wished to, gobble up its various competitors. The company recognizes that its proper function is to try to perform efficiently those services which it can perform well. And I can assure you we have to keep on our toes to do it.

There is one final observation regarding the question of concentration of ownership and management which I would like to throw into the discussion, and that is the rate at which management's job has become more complicated in recent years. Market research is only one example of new and specialized tools. With government controls such as we now have, a firm needs a small army of accountants, tabulators, and lawyers to prepare records and reports. This applies not only in the raising of capital where complicated registrations, legal requirements, licenses of various sorts have made the starting of a business a very frightening affair. It applies also in connection with the need for lawyers to be sure of compliance with all of the regulations pertaining to labor standards, to bookkeeping methods, liabilities of various kinds, tax calculations, etc. Some of the concern of the federal government over small business may arise from a sense of guilt about some of the government-imposed encumbrances. Departments that a company like Swift can afford are often beyond the means of small enterprise which, nevertheless, cannot escape the burdens of controls, regulations, reporting, etc.

On the other hand, there is growing up in this country a profession which may prove to be the answer to many of the problems of small enterprise. It may even give us a trend in the direction of smaller ownership and management units. I am referring to the availability of specialized services conducted by industrial engineers, accountants, market research organizations, etc. There are associations of design engineers, industrial relations counselors, packaging specialists, and other specialized groups who can perhaps provide for the smaller business those services which it could not itself afford to provide on a permanent employment basis. I should think that Mr. Blair "as an institutionalist" would have given some consideration to this development. It represents further specialization within the management function. We may even see here in its formative stage a new tendency for management functions to be one step further removed from the owner or proprietor. These services can be made available to any size of firm.

THE SHERMAN ACT AND THE ENFORCEMENT OF COMPETITION

PROBLEMS OF ENFORCEMENT AND INTERPRETATION OF THE SHERMAN ACT

By WENDELL BERGE
Posner, Berge, Fox and Arent

The Sherman Antitrust Act has been on the statute books for fifty-seven years. It is the legislative expression of a basic American tradition. Yet the concentration of economic power has increased with the years, and the Sherman Act has not prevented the monopoly pattern from becoming standard in many American industries.

Lack of vigorous enforcement has partly accounted for the ineffectual results of the Sherman Act. During a large part of the Act's history, enforcement was little more than a token. Only a small staff was possible under the paltry appropriation. Few cases were instituted and no attempt was made to apply the law on a broad front—to make it really significant as an instrument of economic policy.

About ten years ago there occurred something of an awakening as to the significance of the economic concentration that was occurring. The hearings of the Temporary National Economic Committee focused the problem. The Department of Justice adopted a more active policy. Congress appropriated larger funds, and for the first time in history a broad attempt at enforcement was made. More antitrust suits have been brought by the federal government since 1938 than in the entire preceding forty-eight years of antitrust history.[1] The war necessarily retarded the momentum of the new policy and hampered its effectiveness. Yet during the last ten years there has been an increasing awareness of the fact that competition has been rapidly disappearing in many American industries.

We appear now to be at the crossroads. The policies adopted and pursued in the next few years will probably determine the direction we take for several generations. Will we let monopoly power increase to the point where political pressures force the government to assume control of many of our major industries? Or will we seek to reverse the trend and to assure that private competition shall operate actively in that large domain of business that is not public utility in nature?

In considering these questions it is necessary to examine the judicial interpretation of the Sherman Act to ascertain whether the scope of court decisions gives promise that the Act could be made economically effective.

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[1] According to the Summary of Cases in the official antitrust "Blue Book" for January 15, 1947, there were 428 legal actions (civil and criminal) instituted in the years 1890-1937 and 453 such actions in the years 1938-46 (including two cases instituted January 2, 1947).

An early tendency developed in judicial decisions to pursue different lines of reasoning where monopolization was charged than where restraint of trade was involved. In monopoly cases, the courts until recently were primarily concerned with abuses rather than with size and the power that inheres in it. The classic expression of this view is found in the *United States Steel* case[2] where the Supreme Court held that the United States Steel Corporation was not a monopoly because it was not at the time of the suit guilty of predatory practices toward competitors, and "the law does not make mere size an offense or the existence of unexerted power an offense." The Court referred to the absence of "unworthy motives" and said the law requires "overt acts" as a necessary ingredient of the offense.

In the *Steel* case the corporation had less than 50 per cent of the steel market. Later, in the *International Harvester* case[3] the Court found a 64 per cent market control unobjectionable.

Under this application of the law, the government could not prevent mergers where the merging companies together did not occupy an overwhelming percentage of the industry and were not guilty of abuses or predatory practices. Obviously, very few mergers, in and of themselves, create a percentage control that would be offensive under the kind of test suggested by the *Steel* and *Harvester* cases.

But from the economic point of view monopoly occurs through the cumulative effect of mergers which whittle away independent competitive units by progressive stages and establish increasing market control in the hands of the merging units. By the time a percentage control is reached which might be objectionable under the *Steel* and *Harvester* cases if coupled with predatory practices, the dominant companies have acquired a sort of vested position. Moreover, if their conduct has been gentlemanly and they have grown through acquisitions accomplished in the usual course of business growth, corporations may be allowed to hold their gains on the ground that they have been honestly acquired and without abuses. This interpretation of the Sherman Act, which obtained for more than a generation, may have been reassuring to big business but it certainly did not stop the trend toward increasing economic concentration.

At the same time that the Court was thus applying the monopoly prohibition of the Sherman Act, it was holding illegal many of the collective activities of competing business units on the ground that they were illegal restraints of trade. Some types of collusive activity between competitors, such as price fixing, have long been held to be illegal per se.[4] And various other collusive practices between competitors who collectively occupy a relatively small place in the national economy were held to be unreasonable restraints of trade under Section 1 of the Sherman Act. Thus, as the law developed, an agreement to fix prices between two competitors, each of whom, let us say, controlled 4 per cent of the production of an industry, would be illegal per se under Section I of the Sherman Act. Yet, if such competitors were to merge they would obviously eliminate all price competition between themselves and would accomplish a substantial dimunition of competition within the industry as a whole. But such a merger, under the *Steel* and *Harvester* decisions, would be legal.[5] Naturally, this state of the law encouraged mergers as a way to eliminate price competition without prosecution.

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[2] *United States* vs. *United States Steel Corporation,* 251 U.S. 417 (1920).

[3] *United States* vs. *International Harvester Company,* 274 U.S. 693 (1927).

Interesting in this connection is the practical result of the famous *Addyston Pipe and Steel Company* case.[6] That case, decided in 1899, held illegal a conspiracy between six corporations to enhance prices by eliminating competitive bidding in the sale of cast iron pipe. Recently the Department of Justice filed a civil suit in New Jersey against United States Pipe and Foundry Company and four other companies alleging both restraint of trade and monopoly. The complaint recites the history of the cast iron pipe industry subsequent to the decision of the Circuit Court of Appeals in 1897 that the price-fixing conspiracy should be enjoined. According to the department's allegations, there was effected in 1898 a consolidation of four of the companies who were defendants in the *Addyston* case. The consolidated company was known as American Pipe and Foundry Company. After the decree of the Circuit Court of Appeals had been affirmed by the Supreme Court in 1899, the defendant United States Pipe and Foundry Company was incorporated in New Jersey and it acquired American Pipe and Foundry Company, the two remaining defendants involved in the *Addyston* case, and a number of other companies. The department alleges that United States Pipe and Foundry Company is now the largest manufacturer and distributor of cast iron pressure pipe in the United States. Thus the defendants in the *Addyston* case who had been enjoined from carrying out their price-fixing conspiracy merged into what is now the largest company in the industry and completely eliminated competition among themselves.

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[4] *United States* vs. *Trenton Potteries Company,* 273 U.S. 392 (1927); *United States* vs. *Socony-Vacuum Oil Company,* 310 U.S. 150 (1940).

[5] Subject, of course, to not being in violation of Section 7 of the Clayton Act prohibiting acquisitions of stock by one corporation in another where the effect is to substantially lessen competition between such corporations. Even this provision has been given a very limited interpretation by the courts. See *Arrow-Hart & Hegeman Company* vs. *Federal Trade Commission,* 291 U.S. 587 (1934).

[6] *Addyston Pipe and Steel Company* vs. *United States,* 175 U.S. 211 (1899).

The absurdity of permitting through acquisitions and mergers the accumulation of economic power of much greater significance than attaches to most price-fixing agreements between competitors is coming to be realized. The courts are tending more and more to look at the economics of the problem. Judicial thinking seems to be shifting away from the view that *only abuses* are bad in the eyes of the law and toward the view that the Sherman Act *forbids monopolization as such.*

Although this shift was implicit in the District Court's decision in the *Pullman Company* case,[7] it was the opinion of Judge Learned Hand in the *Alcoa* case[8] that first articulated the interpretation of the scope of the monopoly prohibitions which has now been adopted by the Supreme Court. In the *Alcoa* case the three senior judges of the Circuit Court of Appeals for the Second Circuit held that Alcoa had a monopoly of the domestic ingot market within the meaning of the Sherman Act, even though the company was not found to be guilty of abuses. The Court looked at the economic effect of Alcoa's power and thought that the mere existence of such power resulted in price-fixing by Alcoa for the whole market. When Alcoa sold its products, the mere existence of the power to fix prices inherent in the monopoly position could not be distinguished from the exercise of such power. Any distinction between the existence of monopoly power and its exercise was "purely formal." When the monopoly entered the market "the power and its exercise must needs coalesce." The Court used strong language, characterizing as "absurd" the notion that price-fixing contracts are unconditionally illegal but monopoly power to fix prices is not. Thus, the effect of this reasoning seems to be that the law bans price fixing, irrespective of whether it is accomplished by collusion among competitors or by monopoly power, and monopoly power inherently involves price fixing. This comes near to being a holding that size in itself is an offense.

The Supreme Court expressly approved the *Alcoa* decision in the *American Tobacco* case[9] decided in 1946. In that case the three leading tobacco companies and other were found guilty in a criminal case of both restraining trade and of monopoly. The trial judge's instruction permitted a verdict of guilty of monopolization on a finding of power and intent to exclude competitors, even though no actual exclusion was found to have occurred. The conviction was affirmed by the Supreme Court in an opinion holding that actual exclusion of competitors is not necessary to the crime of monopolization.

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[7] *United States* vs. *Pullman Company,* 50 F. Supp. 123 (1943).

[8] *United States* vs. *Aluminum Company of America,* 148 F. (2) 416 (1945).

[9] *American Tobacco Company* vs. *United States,* 328 U.S. 781 (1946).

The *Tobacco* defendants were nominally competitive but the jury found that they acted together in making and executing price policies, and that together they held the power to exclude competitors. Thus, in upholding the conviction the Supreme Court looked at the possession of power rather than at abuses. Actual exclusion of competitors (abuses or predatory practices) was held not to be a necessary element of the crime. Whereas the court in the *Steel* case had held that "the existence of unexerted power" was not an offense, the court in the *Tobacco* case holds that it is an offense.

I believe that the courts are now tending to approach monopoly cases by reasoning similar to that applied in restraint of trade cases. I have already noted that collusive price fixing between competitors, and various other collusive practices, have long been held to constitute unreasonable restraints of trade. In these restraint of trade cases the Court has reasoned that the practices, as such, were incompatible with the object of the Sherman Act. Worthy motives or gentlemanly conduct were immaterial if the practices were of the class that had been deemed "unreasonable" restraints of trade. And price fixing, at least, was per se an unreasonable restraint of trade. Thus, in these cases the court had looked at the broad objectives of the Act and ruled out practices that clashed with them.

Now in the *Alcoa* and *Tobacco* cases, the courts seem to be applying something of the same type of reasoning to the monopoly prohibitions of the Sherman Act. The courts, in the *Alcoa* and *Tobacco* cases, look at the objective of the Sherman Act to preserve freedom of competition and in effect find that the existence of monopoly power in an industry, in and of itself, is at war with such objective. It seems that price fixing and monopolization are now in something of the same posture. The rationalization of the so-called "rule of reason" to both would be about the same. Price fixing is unreasonable per se whether the prices are high or low, reasonable or unreasonable. Monopoly power cannot reasonably be reconciled with the objective of the Sherman Act, because its mere existence constitutes the power to fix prices, exclude competitors, and otherwise control a market. This seems to be the trend of current judicial thinking and it emphasizes the narrowing of the gap between the standards applied in restraint of trade and monopoly cases.

And, applying this growing tendency to look at the economics of the situation, the Supreme Court in the *International Salt Company* case,[10] decided at the present term of court, declares for the first time specifically that other practices besides price fixing may be per se unreasonable and hence illegal. The Court in the *Salt* case rules squarely that "it is unreasonable per se to foreclose competitors from any substantial market." The case was an action by the government to enjoin the company from carrying out provisions of leases of its patented machines to the effect that the lessees would use in such machines only International's unpatented salt products. Similar restrictive agreements have been held illegal in private patent infringement suits. The defendants admitted the facts and the government moved for summary judgment on the ground that the admitted facts warranted a judgment against the defendants as a matter of law. The Supreme Court affirmed a judgment in favor of the government in an opinion by Mr. Justice Jackson which was unanimous on the pertinent point. The Court said:

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[10] *International Salt Company* vs. *United States,* 92 L. Ed. 55 (November 10, 1947).

> We think the admitted facts left no genuine issue. Not only is price-fixing unreasonable, *per se, United States* v. *Socony-Vacuum Oil Co.* 310 U.S. 150, *United States* v. *Trenton Potteries Co.* 273 U.S. 392, but also it is unreasonable, *per se,* to foreclose competitors from any substantial market. *Fashion Originators Guild* v. *Federal Trade Commission,* 114 F. 2d 80, affirmed, 312 U.S. 457. The volume of business affected by these contracts cannot be said to be insignificant or insubstantial and the tendency of the arrangement to accomplishment of monopoly seems obvious. Under the law, agreements are forbidden which "tend to create a monopoly" and it is immaterial that the tendency is a creeping one rather than one that proceeds at full gallop; nor does the law await arrival at the goal before condemning the direction of the movement.

It is interesting to note that, although the facts involved a lease of a patented machine with a clause restricting use, the case cited as authority (*Fashion Originators Guild* vs. *Federal Trade Commission*) was a boycott case. Thus it may be assumed that the Court did not intend its holding to be limited to restrictions on use in leases or licenses which would violate the Clayton Act if tending to create a monopoly, and that the holding means that any exclusion of competitors from a market, whether by restrictive agreement, boycott, or otherwise, is illegal per se unless the market is insignificant or insubstantial. The suggestion that the law does not "await arrival at the goal before condemning the direction of the movement" is encouraging.

Another opinion of outstanding significance in pointing the direction of the current judicial trend was delivered in the *Yellow Cab* case,[11] decided by the Supreme Court last June. This case holds that an unreasonable restraint "may result as readily from a conspiracy among those who are affiliated or integrated under common ownership as from a conspiracy among those who are otherwise independent." This holding is especially important in the light of the later holding in the *International Salt* case that exclusion of competitors from a substantial market is unreasonable per se.

The joint impact of these two cases merits careful scrutiny. In the

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[11] *United States* vs. *Yellow Cab Company,* 91 L. Ed. 1594 (June 23, 1947).

Yellow Cab case it was charged that the Checker Cab Manufacturing Corporation acquired control of companies operating taxicabs in several cities, including Chicago, and through such control required the operating companies to buy cabs exclusively from the parent company at prices above the market. The Court pointed out that the exclusive purchasing agreements excluded all other manufacturers of taxicabs from 86 per cent of the Chicago market, 15 per cent of the New York market, 100 per cent of the Pittsburgh market, and 58 per cent of the Minneapolis market. At the same time the trade of the controlled cab companies was restrained since they were prevented from purchasing cabs from manufacturers other than the parent company.

The District Court dismissed the complaint on the defendants' motion and the government appealed to the Supreme Court. In argument the defendants sought to justify the challenged arrangements on the ground that they were all within a vertically integrated enterprise. It was urged that by reason of the corporate control only a single business was involved and that a charge of unlawful conspiracy cannot be based on normal business arrangements within what is in effect a single business unit. The Supreme Court rejected the defense, holding that the facts alleged by the government stated a violation of the Sherman Act.

The basic nature of the restraint charged in this aspect of the *Yellow Cab* case and that which was involved in the *International Salt* case seem to be the same. In the *Yellow Cab* case, there was a restraint on the right of the operating companies to buy their cabs in a free market and the accompanying denial to manufacturers competing with the parent company of an opportunity to sell to the operating companies. In the *International Salt* case, there was a restraint on the right of the lessees to use the machines except with salt purchased from the lessor and the consequent restraint on the market for salt of the manufacturers competing with the lessor. This narrowed the market of such competitors and restricted the freedom of the lessees.

I submit that the *Yellow Cab* case, just as much as the *International Salt* case, involved a charge that the defendants foreclosed competitors from a substantial market. In the *Salt* case the Court says that this is unreasonable per se. The *Yellow Cab* case holds that the illegality of the arrangements is not necessarily affected by the corporate integration of the companies involved, and that "the corporate interrelationships of the conspirators . . . are not determinative of the applicability of the Sherman Act. . . . The common ownership and control of the various corporate appellees are impotent to liberate the alleged combination and conspiracy from the impact of the Act."

Taking the language of the *Yellow Cab* opinion and weighing it with that of *International Salt* opinion, do we now have an indication that agreements between companies that are affiliated through stock ownership which foreclose competitors from a substantial market would be held illegal per se?

The impact of the *Yellow Cab* case, as implemented by the *International Salt* case, may be most significant for integrated industries. Understandings between companies which are part of the same corporate empire barring the use of products of unaffiliated companies are standard in many industries. Large corporate enterprises, for practical reasons such as taxes, have often preferred to conduct the various phases of their operations through different corporations, but to conduct them in effect as a single business. Between such corporations there are often express or implied understandings limiting the operations of the affiliated companies. Where such arrangements bar competitors from a substantial market, as often they do, are they now illegal per se? The *Yellow Cab* case, read in the light of the *International Salt* case, would suggest an affirmative answer to this question.

Sergei S. Zlinkoff and Robert C. Barnard declare in their recent analysis of the *Yellow Cab* decision:[12]

> The effect of this part of the decision on integrated enterprises may be overwhelming, depending on the undisclosed limits to which the Court is prepared to push its reasoning. The essence of integration is the elimination of competition. A parent corporation wants an assured (restricted, if possible) source of supply and an integrated exclusive selling organization, or outlet restricted to dealings with it. This is obviously one of the primary business motivations in creating an integrated organization.

Of course, the *Yellow Cab* case reached the Supreme Court only on the question of the sufficiency of the complaint to allege a violation of law. No evidence had been heard. From this technical posture the case must simply be regarded as a holding that where agreements excluding competitors are charged, it is not necessarily a defense to show that they occur within the framework of corporate integration. But the implications, especially in the light of the *International Salt* case, are sufficiently pointed to require a reappraisal of the operations of many conglomerate enterprises which restrict their subsidiaries to dealings within the family.

Turning for a moment to the problem of effective court judgments in antitrust cases, the *International Salt* case is also encouraging. In that case the judgment contained a provision directing the company to offer to lease, sell, or license its machines to any applicant on nondiscriminatory terms and conditions. Apparently the purpose of this provision was to prevent evasion of the main injunctive provisions by a policy of licensing only to those who used the defendant's salt products in the machines, thereby accomplishing the same result as the illegal restrictions in the leases. There was no evidence that the defendant would seek to resort to subterfuge in order to avoid the judgment. Nevertheless, a majority of the Court thought that the provisions requiring nondiscriminatory treatment of customers were appropriate. On this point the Court said:

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[12] Zlinkoff and Barnard, *The Supreme Court and a Competitive Economy,* 47 Columbia Law Review, 914, 131 (September, 1947).

> The fact is established that the appellant already has wedged itself into this salt market by methods forbidden by law. The District Court is not obliged to assume, contrary to common experience, that a violator of the antitrust laws will relinquish the fruits of his violation more completely than the court requires him to do. And advantages already in hand may be held by methods more subtle and informed, and more difficult to prove, than those which, in the first place, win a market. *When the purpose to restrain trade appears from a clear violation of law, it is not necessary that all of the untraveled roads to that end be left open and that only the worn one be closed.* The usual ways to the prohibited goal may be blocked against the proven transgressor and the burden put upon him to bring any proper claims for relief to the court's attention. . . . In an equity suit, the end to be served is not punishment of past transgression, nor is it merely to end specific illegal practices. A public interest served by such civil suits is that they effectively pry open to competition a market that has been closed by defendant's illegal restraints. If this decree accomplishes less than that, the Government has won a lawsuit and lost a cause.[13] (Emphasis supplied.)

True, there have been other Supreme Court decisions which enunciate the doctrine that relief may go further than the mere prohibition of illegal acts, but the *International Salt* case emphasizes that the present Court is definitely prepared to uphold comprehensive judgments where the lower courts have framed them with a view to accomplishing economic results. This is very important to effective antitrust enforcement.

The necessary time limits on this discussion prevent covering more ground although there have been recent significant developments in other fields, such as the application of the Sherman Act to patent abuses. One might generalize and say that the trend seems to be away from the notion that there are good restraints and bad restraints, good monopolies and bad monopolies.

This judicial approach is very important especially when one reviews the history of monopolies and cartels in other countries where their legality was recognized and an attempt made at regulation on the basis of permitting the good practices and excluding the bad. It is beyond the scope of this discussion to review that history, but it shows that many of the countries that ultimately adopted the fascist pattern did it only after their attempts at regulating monopolies and cartels had failed.[14]

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[13] Justices Frankfurter, Reed, and Burton dissented from this portion of the judgment. The dissenting Justices thought that this relief was not shown to be necessary and that "the law also respects the wisdom of not burning even part of a house in order to roast a pig" and that "the baby is not to be thrown out with the bath."

[14] See Heinrich Kronstein and Gertrude Leighton, *Cartel Control: A Record of Failure,* 25 Yale Law Journal, 297 (1946).

It should also be noted that recent opinions show a concern for the social and moral values of the type of capitalism which the Sherman Act seeks to protect, as well as for the economic values. For example, in the *Alcoa* opinion, after disposing of the argument that Alcoa had not made more than a fair profit, the Court went on to say:

> The Act has wider purposes. Indeed, even though we disregarded all but economic considerations, it would by no means follow that such concentration of producing power is to be desired, when it has not been used extortionately. Many people believe that possession of unchallenged economic power deadens initiative, discourages thrift and depresses energy; that immunity from competition is a narcotic, and rivalry is a stimulant, to industrial progress; that the spur of constant stress is necessary to counteract an inevitable disposition to let well enough alone. . . . Congress . . . did not condone "good trusts" and condemn "bad" ones; it forbad all. Moreover, in so doing it was not necessarily actuated by economic motives alone. It is possible, because of its indirect social or moral effect, to prefer a system of small producers, each dependent for his success upon his own skill and character, to one in which the great mass of those engaged must accept the direction of a few. These considerations, which we have suggested only as possible purposes of the Act, we think the decisions prove to have been in fact its purpose.

Thus the courts have come at last to an application of the Sherman Act in line with its historic purpose. That purpose is directly related to the preservation of private competitive enterprise and of capitalism. There are many difficult problems involved in making the policy of the Sherman Act prevail in the present troubled affairs of life. But if the people, Congress, and the law enforcement officers face the problems as squarely as have the courts and act vigorously to solve them, there is still hope. And our hope and determined purpose must be to restore that dynamic quality to our competitive system which has made this country great—to make our chosen way of life proof against the forces that threaten destruction.

NEEDED CHANGES IN LEGISLATION

By Estes Kefauver
House of Representatives

In this paper, I wish, first of all, to state the fundamental reasons behind my belief in antitrust action. Far from sharing Dr. Ise's belief that trust-busting is "futile," I believe not only that it can be made effective but that it is the most desirable of the few basic courses of economic action available to us at the present time.

As long-range alternatives to antitrust laws,[1] I know of only four basic approaches: the *status quo*, socialization, regulation, and deficit financing. To my way of thinking, the first two are not really alternatives at all. Allowing the *status quo* to continue merely means that we allow our economic destinies to be governed by the managers and directors of a few large corporate organizations. This alternative implicitly assumes a sort of blind faith that these corporate managers, in determining price, production, and other economic policies, will be guided by considerations that reflect the public interest. Although an increasing number of large corporations have, in fact, shown some evidence of concern with the public interest, I know of no reason why these corporate managers should be immune from Lord Acton's well-known dictum that "power corrupts and absolute power corrupts absolutely."

As far as the second alternative is concerned, it is a waste of time even to talk about the socialization of industry. Not only is the whole idea of socialization repugnant to the political convictions of the American people, but there is little, if any, tangible evidence to support the contention that socialism would be efficient or workable as an economic system.

In my opinion, the third alternative—the regulation of industry—would probably never be advocated by a member of this organization who had ever been a Member of Congress. It is not difficult for me to imagine the buffeting and pounding to which the average Congressman would be subjected by the industries to be controlled. If any attempt were made to impose long-range controls over prices, production, wages, etc., over many of the nation's basic industries we know that it would not be tolerated. This would stifle the spirit of initiative which has made our country great. This has been the typical history of most attempts at regulation, and there is no reason to assume that it would not prevail in the future as it has in the past.

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[1] I wish to emphasize here the words "long range." In the short-range emergency situation which now confronts the country, antitrust policy is obviously incapable of meeting the drastic problems raised by the acute shortages of grains, livestock, and similar items. Consequently a few short-range specific controls must be put into effect if we are to avoid skyrocketing inflation and a resultant inevitable economic collapse.

This leaves as an alternative to antitrust action only government spending, which, I believe, boils down to deficit financing. The question may be raised, of course, as to why the necessary funds over a long-range period could not be raised by taxation. The answer to that lies in a basic political paradox. It is only in prosperous times that taxation would yield sufficient funds to support an extensive public works program; yet during prosperity, public spending is not needed, and since the need would not exist, taxes for this purpose would not be imposed. If anyone has any doubts concerning the reluctance of legislators to provide a governmental surplus in times of prosperity, let him examine the record of the 80th Congress.[2] In contrast, during a depression when public works really are required, taxation, within any conceivable, realistic bounds, would not yield the necessary revenue, especially when some 5 billion dollars of the tax payments would have to be used to pay the interest on the national debt and an additional large sum would have to be used for national defense and other fixed purposes. Even if we were to grant the desirability of deficit spending during depressions, we must recognize the improbability of such deficits being made up by surpluses provided in prosperity. Hence it would appear that the public spending approach, as a long-range course of action, inevitably implies deficit financing—a fact which many of its supporters refuse to acknowledge. It may come to pass that at some future date the American people and their representatives in Congress will come to accept deficit financing as the basic long-range approach, or at least change their minds concerning the desirability of creating large surpluses during periods of prosperity, but I seriously doubt it.

By briefly discussing these other possible approaches I do not wish to convey the impression that my belief in antitrust policy rests only upon the greater disadvantages of its alternatives. In addition to this factor, which incidentally is of compelling importance to anyone who must take a daily stand on all manner of related and unrelated issues, my belief in antitrust action rests upon positive and affirmative economic, sociological, and political considerations.

When I went to college I was taught that, in the long run, prices tend to be lower and production greater under competition than under monopoly. Perhaps there have been new discoveries in the field of economics which would tend to invalidate this basic maxim. But from all that I have observed from the vantage point of the House Small Business Committee and the House Judiciary Committee, this rule seems to be even more applicable today than ever before. For example, at a time when profits are exceeding all-time highs, when demand is the greatest in history, we are confronted with the anomalous situation that certain monopolistic industries refuse to expand their capacity. I wish to ask you economists whether or not such a situation could exist in a competitive industry.

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[2] Cf. Reports of the House Ways and Means Committee and the Senate Finance Committee on H.R. 1 and H.R. 3950.

A second economic reason behind my belief in antitrust policy consists of what Dr. Blair, in his paper refers to as the "decentralizing techniques." The thesis advanced by Dr. Blair that technology is now moving more in the direction of smaller- rather than larger-scale operations certainly derives support from numerous instances which I personally have observed in my own region, the Tennessee Valley. Aided by low-cost electric power (which Dr. Blair lists as a major decentralizing technique), many relatively small enterprises have become established in the valley and have been successful in their competition with much larger enterprises.

The sociological basis for my belief in antitrust policy is my conviction that standards of human welfare tend to be higher in communities which are characterized by the existence of a large number of independently-owned and -operated enterprises than in comparable communities in which most of the economic activity is carried on by a few large plants owned by distant and outside interests. In this connection, I want to call your attention to a very provocative little study made by the Smaller War Plants Corporation, and printed by the Senate Small Business Committee, on "Small Business and Civic Welfare," which compared the levels of civic welfare in three pairs of communities. One member of each pair was a "small business" community in which most of the economic activity was carried on by a large number of relatively small business enterprises. The other member was a typical "big business" community in which most of the employment and production was centered in a few giant absentee-owned plants. By nearly all of the many sociological tests employed, the levels of civic welfare were found to be higher in the small business than the big business communities. This finding for industrial communities was substantiated for agricultural communities in a report prepared by the Department of Agriculture which was also issued by the Senate Small Business Committee.

Finally, my belief in antitrust policy rests upon a fundamental political basis. Is there not some real merit in the argument that a great concentration of industry would inevitably lead to some type of collectivistic state in which our democratic liberties and political rights would cease to exist? There may be those who are convinced that some type of state control is inevitable and are willing to take their chances that this top "control" will be exercised benevolently and in the public interest. I, myself, would prefer not to take that chance. Certainly the pages of recent history lend little comfort to those who would stake their hopes on a wise, humane, and judicious exercise of a great centralization of political and economic power.

To summarize, my belief in antitrust policy as the most desirable program for economic progress is based upon: (1) the serious and sometimes overwhelming disadvantages of its possible alternatives; (2) the economic considerations, that in the long run prices tend to be lower and production greater under competition than under monopoly and that modern technology is now tending more in the direction of smaller-scale than larger-scale operations; (3) the sociological consideration that levels of civic welfare appear to be higher in small business than in big business communities; and (4) the political consideration that the centralization of economic power will inevitably lead to the centralization of political power, which in turn will endanger if not destroy our democratic institutions.

After having thus set forth the bases for my belief in the desirability of a vigorous antitrust program, I shall now suggest certain changes in the law which are needed in order to make the antitrust program effective, since it certainly has not been particularly effective up to the present time. The specific points which I wish to suggest fall under the following general objectives: (1) provide adequate appropriations; (2) eliminate conspiracies; (3) halt the growth of concentration; (4) reduce existing concentration; (5) remove the financial control over industry; (6) use the economic fact-finding power of the Federal Trade Commission Act.

1. *Provide Adequate Appropriations.* It has become more or less of an accepted tradition in speaking about the requirements for an effective antitrust program to begin one's remarks with an invocation for appropriations—a tradition which has become well established and one which I see no reason to change. Actually, the facts concerning appropriations for the antitrust agencies are even worse than most of you have probably been led to believe. As Chairman of the Monopoly Subcommittee of the House Small Business Committee during the last session of Congress, I had an opportunity to make a fairly thorough investigation of this whole subject of appropriations, the results of which are printed in the Staff Report of this Subcommittee (which, unfortunately, is now out of print).[3]

Rather than take up your time with a detailed exposition of the findings of that report, I would like to call your attention to just a few simple figures: the requests made by the antitrust agencies to the Bureau of the Budget, the amounts approved by the Bureau of the

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[3] 79th Cong., Staff Report to the Monopoly Subcommittee of the House Small Business Committee, *U. S. versus Economic Concentration and Monopoly,* 1946.

Budget for submission to Congress, and the amounts actually appropriated by Congress. During the ten-year period 1938-47, the requests by the Federal Trade Commission to the Bureau of the Budget averaged $3,101,019 a year; the amount approved by the Bureau of the Budget for presentation to Congress averaged $2,328,727; and the amount appropriated by Congress averaged $2,193,597. During the period 1939-47, the requests by the Antitrust Division of the Department of Justice to the Bureau of the Budget averaged $1,986,077; the amount approved for submission to Congress by the Budget Bureau averaged $1,517,472; and the amount actually appropriated by Congress averaged $1,634,517—actually more than the amount approved by the Budget Bureau! To quote the report:

> Two facts stand out: (1) With the exception of the 1947 appropriation, Congress in each of the 10 years gave the Federal Trade Commission practically the amount approved by the Budget Bureau. Therefore, as far as the Federal Trade Commission's budget for the last 10 years is concerned, the Budget Bureau must be held, in the first instance, responsible for that agency's limited appropriation. (2) The Budget Bureau made very substantial reductions in the amounts originally requested by the Federal Trade Commission.

The report went on to state that:

> The Budget Bureau always musters good reasons for cutting an agency's appropriation. The consistent cuts by the Budget Bureau indicate more clearly than any amount of words either (a) lack of awareness of the importance of antitrust activity to the maintenance of the competitive enterprise economy, or (b) a belief that the Federal Trade Commission's activities were not sufficiently significant to the antitrust program to warrant additional funds. If the latter was the reason, it is no answer to slash the agency's budget. Instead, the Budget Bureau should undertake, as the Executive's general manager, to bring about the administrative improvements necessary to enable the Commission to properly carry out its functions. (page 30)

In regard to the Antitrust Division, the report stated:

> Here again, as in the case of the Federal Trade Commission, one finds that when sharp cuts are made they are made by the Budget Bureau. As a matter of fact, in 4 of the 9 years reported on, Congress appropriated more money to the Antitrust Division than has been approved by the Budget Bureau. (page 51)

It may surprise you to know that the total amount received by the Federal Trade Commission and the Antitrust Division, combined, is less than the appropriation for the Securities and Exchange Commission whose functions of course are much more limited and restricted than those of the antitrust agencies; that the annual appropriations for the two antitrust agencies, combined, would have been sufficient to carry on the war effort for a period of about thirty minutes; and that the Federal Trade Commission has now the overwhelming total of eight economists, as does the Antitrust Division, to survey the entire economy, prepare economic reports for Congress, discover the areas of possible monopolistic practices, determine the relative significance and economic importance of the multitude of possible infractions of the law, develop economic data required on individual antitrust actions, and survey the results, from an economic point of view, of the effectiveness of the agencies' actions, for as the Monopoly Subcommittee report pointed out, "there is oftentimes a great difference between a legal victory and an economic victory."[4]

The fundamental importance of appropriations to any antitrust program cannot be overstressed. Year in and year out the Congress has added to the number of existing antitrust laws, particularly those administered by the Federal Trade Commission. Yet funds have not been provided to carry on these increased responsibilities. As a result, the Federal Trade Commission has been forced to spread its regular appropriations over a wider and wider number of functions, thereby making it impossible for the Commission to do an effective job on any one of the laws under its administration. There is, I believe, no purpose in continuing this practice of increasing the number of statutes to be enforced if the means of enforcing them are not also provided.

Up until this last month, I was truly fearful that the Sherman Act, the Clayton Act, and the Federal Trade Commission Act would come to suffer the same fate that has already befallen other antitrust provisions of law, such as the state antitrust laws (many of which are not enforced at all), or, to take a more striking example, the Panama Canal Act of March 4, 1913, which contains a surprising provision that no vessel owned or operated by a concern that is doing business in violation of the antitrust laws shall be permitted to enter and pass through the Panama Canal. Monopolies are thus condemned to the arduous, time-consuming trip around the Horn, while competitive firms are given the definite advantage of some 9,000 miles. To the best of my knowledge, this provision of law, which certainly indicates that Congress has tried to be imaginative in dealing with the monopoly problem, has never been enforced.

However, we now have some basis for hoping that the nation's other antitrust laws will not go the way of the Panama Canal Act of 1913. For the first time in many years the Budget Bureau has approved a substantial increase in the amounts requested of Congress for the Federal Trade Commission and the Antitrust Division. The amounts requested for the next fiscal year are $3,802,000 for the Commission and $3,250,000 for the Antitrust Division, as compared with actual appropriations for the current fiscal year of $2,900,120 and $2,150,000, respectively. What Congress will do to these requests may prove to be an entirely different story. But at least it appears that the Budget Bureau has finally roused itself from that comfortable lethargy into which it has always fallen whenever the subject of antitrust enforcement has been raised. Of course, there is still a long way to go. The former economics adviser to the Federal Trade Commission has stated: "An annual appropriation of $150,000,000 for the Anti-Trust Division of the Department of Justice and $100,000,000 for the Federal Trade Commission will not be too large if monopoly is to be driven out of business."[5] Although I do not know what the actual figures should be, I do know that they should be much higher than the present estimates, but at least we take hope from the fact that at long last the Budget Bureau seems to be moving in the right direction.

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[4] *Ibid.*, p. 26.

2. *Eliminate Conspiracies.* The law is clearer and more definitive on the question of conspiracies than on any other aspect of the antitrust laws, owing largely to the resolute and uncompromising stand taken by the Supreme Court against monopoly by conspiracy. The Court has been particularly assiduous in dealing with conspiracies to fix prices. When independent competitors get together and enter into an agreement, arrangement, or understanding to fix the price of goods which they sell or purchase, they are violating the antitrust laws, without any "ifs, ands, or buts." As Dr. Milton Handler has pointed out:

> It matters not whether the prices are set by combinations of sellers or buyers, whether prices are raised, lowered, or maintained at existing levels, whether the prices are reasonable or unreasonable, whether the agreement fixed minimum or maximum prices, or whether price structures are tampered with by direct agreement or by any other means. Nor are the motives or intentions of the members of the combination material. It is of no moment that they may in good faith have regarded such an agreement as essential to their economic salvation. Nor would evidence be admissible, if such could ever be produced, that in practice the agreement resulted in demonstrable social and economic benefits to all those in or dependent upon the industry in which the combination operates. The fact that the agreement fixes or maintains prices is conclusive of its illegality.[6]

The court has been equally hostile to conspiracies aimed at the control of output. Although, strangely enough, only a handful of cases involving this practice have gone to the Supreme Court, the few available decisions indicate that it is just as illegal for producers to conspire to control output as to fix prices.[7]

Likewise, the Court has frowned upon any sharing of the market through such means as allocating fixed percentages of the available business to each producer, dividing sales territories on a geographical basis, allotting customers to each seller, distributing business through a common sales agency which apportions orders, imposes production quotas on its members, or engages in similar activities. "Recognizing the dangers implicit in these arrangements, the Supreme Court has held that agreements and arrangements for sharing markets are illegal under the Sherman Act."[8]

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[5] Willis J. Ballinger, *By Vote of the People* (Charles Scribner's Sons, 1946), p. 308.

[6] TNEC Monograph No. 38, *A Study of the Construction and Enforcement of the Antitrust Laws,* by Milton Handler, 1941, p. 13.

[7] *Ibid.,* pp. 14-16.

[8] *Ibid.,* p. 17.

Despite the clarity of the judicial decisions on this general subject of conspiracy, there are a number of ways in which the present laws could be made more effective. One of the most important steps to be taken is to make the punishment fit the crime. At the present time the maximum penalty by way of fine for violation of the antitrust laws is $5,000. In the words of the Temporary National Economic Committee:

> This amount is clearly inadequate as a deterrent to businessmen or to groups of businessmen whose incomes are in the millions, and the Committee therefore recommends that the maximum limit for fines be raised to at least $50,000, leaving discretion with the court to assess the penalty according to the means and circumstances of the defendant and according to the extent to which it has profited by the violation of the Act.[9]

I heartily concur in the spirit of this recommendation, which incidentally was approved by all members of the Temporary National Economic Committee without objection. I have, however, a different type of suggestion to offer in regard to this question of penalties. I would suggest that a systematic method of determining penalties be developed and incorporated in legislation based on the following criteria: (a) that this system of penalties should apply only to cases involving restraint of trade (i.e., antitrust actions); (b) that the fine should be retroactive to the date on which it was found that the violation has been initiated and should be continuous on a daily basis from that time until the final determination of the case; and (c) that in determining the penalty a fixed ratio should be followed between the size of the company, as measured by its invested capital, and the amount of the fine.

In essence, this system would be based on two perfectly logical principles: that the illegal activity should be punishable during the entire period of its existence, and that the amount of the penalty should vary directly in accordance with the size of the company. Such a system would, I believe, do much to improve the appreciation and interest in the antitrust laws by many of our large corporations which today have only a nodding acquaintanceship with these "charters of economic freedom."

As an additional step to strengthen the law against conspiracies, I would concur in the recommendation of the Temporary National Economic Committee (which was also unanimous), "that the Federal Trade Commission Act be amended to provide that on request of the Attorney General, the Commission, or any member thereof, may hear evidence and make findings of fact and conclusions of law in any pending antitrust proceeding. These findings should be made advisory to the Federal court under whose jurisdiction the case is pending, and that court should be in a position either to pass finally on the Commission's findings and conclusions, refer the report back for additional information, or hear further testimony itself."[10]

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[9] *Final Report and Recommendations of the Temporary National Economic Committee* (1941), p. 40.

The purpose of this provision, of course, would be that of speeding up the progress of antitrust cases initiated by the Attorney General by having them heard before a tribunal which has had long experience in matters relating to the antitrust laws. Any proposal such as this which would accelerate the slow progress of the antitrust cases through the labyrinths of the courts should receive the unhesitating support of everyone who is interested in making the antitrust program effective.

Finally, I wish to endorse a recommendation of the Federal Trade Commission itself, which it has made for many years, that its orders under the Clayton Act be given the same degree of finality and the same sanctions that its orders now have under the Federal Trade Commission Act. Cease and desist orders issued under the Clayton Act can now be enforced only by first obtaining court affirmance and a court decree commanding obedience to the order, and then following this with a contempt proceeding if the decree is disobeyed. In contrast, as a result of the Wheeler-Lea amendment, the commission's orders under the Federal Trade Commission Act now become final within sixty days unless judicial review is initiated, and violations of any final order are subject to a specified money penalty, recoverable by civil penalty suit. In the words of the Commission's Annual Report of 1946: "There appear to be no substantial reasons why orders under both acts should not have the same status as to finality and as to penalties for violation" (page 12).

3. *Halt the Increase in Economic Concentration.* While the Court has interpreted the provisions of the antitrust laws relating to conspiracies in a reasonably explicit and enforcible manner, the provisions relating to mergers and corporate consolidations have been so interpreted as to make them practically useless and unenforcible. Although in the opinion of many of the Supreme Court's own members the Sherman Act was originally intended not only to prevent conspiracies but also to halt the unchecked growth of giant corporations, these members, unfortunately, have not been in a position to make the law, but only to issue ringing dissents.

Obviously, the same economic ends can be achieved through the power of giant corporations as through conspiracies. If, for example, prices are set by an ill-informed conspiracy of independent businessmen who have held letters which should never have been written, minutes which should never have been kept, and records which should long ago have been burned, the outcome of the case is fairly clear. The law has been violated and the evildoers will be punished. But, if prices are set at the same level and under the same economic conditions by a giant corporation, the firm will not run afoul of the law, even though its prices are followed by the remainder of the industry out of instinct, respect, or appreciation of its economic power.

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[10] TNEC Final Report, *op. cit.*, p. 40.

The ability of corporations to do through mergers and consolidations that which they are prohibited from doing in concert with other independent firms obviously makes a mockery of the law against conspiracies. Indeed, as the Federal Trade Commission has stated:

> The antitrust laws (Sherman Act and Federal Trade Commission Act) condemn attempts to control the market by means of *mutual understanding* or agreement among competitors, but if the same objective is achieved through the *purchase of physical properties,* it is lawful in the absence of monopoly and the antitrust agencies are powerless to act. In other words, the weaker, less effective co-operative methods of eliminating competition are prohibited, but the permanent and more effective method of consolidated ownership under a single management is permissible. Moreover, the more effective is the enforcement of the law against collusion among competitors, the greater is their incentive to achieve the same ends through purchase, consolidation and merger.[11]

Nearly two decades ago Drs. Dexter Keezer and Stacy May summarized the prevailing economic opinion, which is undoubtedly even more widespread today: "Almost every student of modern economic affairs is convinced that a concern which dominates an industry, without rivals of comparable size, is able to determine, in large measure, the policies of an industry without resorting to compulsive tactics." Yet, they pointed out, "judicial interpretation of the antitrust laws has had the effect of legalizing almost any degree of concentration of economic power if certain legal formalities are observed."[12]

In gradually developing what is flatteringly termed the "rule of reason," the Court came to adopt four basic standards to determine the legality or illegality of mergers and consolidations; namely, (1) the intent to monopolize, (2) predatory practices, (3) the existence of power to exclude competitors or fix prices, and (4) the effect on potential competition.

As may be seen merely from their listing, the first, third, and fourth are the ultimate in the hypothetical and thus the unenforcible, while the second has tended to become an anachronism in the modern world of big business. On the question of intent to monopolize, who can determine "intent," particularly in well-informed and sophisticated corporations? How is an antitrust agency to find out what is in the "back of the minds" of those who promote consolidations? And of even greater importance, how is the attempt to be proved, since the accused is presumed to be innocent until proved guilty? Why does a big company buy up a large number of small firms? Is it because of an intent to monopolize? The answers have become a matter of automatic reflex. The companies are bought up merely in order to improve their efficiency, or to keep them from going bankrupt, or to provide employment, or to resurrect an old broken-down plant, or to serve some other laudatory economic objective. By injecting this question of intent, the Court has made the art of mind reading—a practice which is prohibited in many states—the primary consideration in deciding whether or not a merger or consolidation should be halted. As Dr. Hamilton has observed, "to isolate from the complex of impulses playing upon a host of persons a particular motive, or to make one impulse to action dominant and the others recessive, is to indulge sheer fiction."[13]

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[11] *The Present Trend of Corporate Mergers and Acquisitions* (Federal Trade Commission, 1947), p. 3.

[12] Dexter Keezer and Stacy May, *The Public Control of Business* (Harpers, 1930), p. 49.

Along with the question of the intent to monopolize, the Court, in cases against consolidations and mergers, has placed greatest emphasis on the existence of predatory practices. Such practices as the exclusion of competitors, discrimination, cutting prices below costs aimed at forcing competitors out of business, artificial restraints on potential competition, and the general abuse of power are some of the practices to which Court has objected, and which, incidentally, have given rise to the ethically interesting but economically irrelevant distinction between "good" and "bad" trusts. The trouble with the injection of these practices into such cases lies in the consummate ease with which they can be avoided by any large corporation which has already achieved dominant size and power. Predatory practices are vestiges of the freebooting days of old the use of which is no longer required by entrenched corporate giants and adoption today of which would be considered an unforgivable blunder by any reputable corporation lawyer.

Perhaps the most ephemeral of all of the standards adopted by the Court is the question of whether or not the corporation has the power to exclude competitors or fix prices. Unfortunately, though understandably, the Court has not seen fit to answer the critical question of just how the existence of this power is to be determined. Is it to be inferred that when a corporation achieves a certain degree of control over an industry—say, 60 per cent or more of its production—it then possesses the power to exclude competitors or fixed prices? If the Court were to adopt some such measurable standard—a remote possibility—it would be doing what it has refused to do in defining a monopoly.

Similarly, the effect on potential competition requires an inquiry into the motives behind the businessmen who do *not* go into a particular industry. There are literally thousands of possible reasons why businessmen do not go into an industry, only one of which would be the power of the combine. The isolation of this one factor from all of the others is another one of those exercises in mind reading imposed by the Court.

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[13] TNEC Monograph No. 16, *op. cit.*, p. 68.

In the *U. S. Steel* case, the Court gave verbal expression to the nullification of the law which inevitably resulted from the use of these standards when it first uttered the celebrated dictum that "the law does not make size an offense, or the existence of unexerted power an offense."[14]

As if it were not sufficiently explicit, the Court in 1927 left no room for doubt by stating in the *International Harvester* case that "the law . . . does not make the mere size of a corporation, however impressive, or the existence of an unexerted power on its part, an offense, when unaccompanied by unlawful conduct in the exercise of its power."[15] In a dissenting opinion to the *International Harvester* case, Justice Day, who was joined by two other members of the Court, objected in indignant sarcasm to this sanctification of size:

> From the earliest decisions of this Court it has declared that it was the effective *power* of such organization to control and restrain competition and freedom of trade that Congress intended to limit and control. That the exercise of the power may be withheld, or exerted *with forbearing benevolence,* does not place such combinations beyond the authority of the statute which was intended to prohibit their formation, and when formed to deprive them of the power unlawfully obtained.[16] (Italics added.)

Although in the *Aluminum* case the judicial interpretation of the Sherman Act in regard to consolidations and mergers has retreated slightly, though very slightly, as will be discussed below, the law of the land still apparently sanctions an extreme and almost complete monopoly of an industry if it is unaccompanied by what the Court chooses to regard as "unlawful practices."

The Sherman Act was not the only law directed against mergers and consolidations which has been undermined by the Supreme Court. Its passage was followed some two and a half decades later by the enactment in 1914 of the Clayton Act, as well as the Federal Trade Commission Act. Section 7 of the Clayton Act gave to the Federal Trade Commission the power to prevent the acquisition by one company of the stock of another company if the result of the acquisition would be to substantially lessen competition or tend to create a monopoly.

The purpose of this section was to halt the growth of "trusts" and "monopolies." The decision of the Supreme Court in the *Northern Securities* case in 1904 and in the *Standard Oil* and *Tobacco* cases in 1911 had apparently established the principle that the government already was armed with the power to break up existing monopolies. The problem, as Congress saw it at the time, was how to prevent the formation of monopoly—how to nip it in the bud. In Section 7 of the Clayton Act, Congress thought that it had the answer.

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[14] 251 U. S. 416.
[15] 274 U. S. 708.
[16] 251 U. S. 465.

But, as events later proved, it thought erroneously; it had not reckoned with the legal profession. The bill had hardly become law before the great legal minds of the country were busily at work trying to discover a loophole in this new and potentially forbidding measure. And before long they had hit upon the answer. Instead of buying up merely the stock of a competitor, why not purchase its assets; that is, its physical plant, inventories, and everything else? While the law was very specific in prohibiting the purchase of stock, it said nothing about assets.

Shortly after the end of World War I, corporations began to take advantage of this loophole. If they purchased assets entirely and did not bother at all with any transaction involving stock, they were obviously free from any action by the Federal Trade Commission. However, in some cases acquisitions of assets were not feasible unless the stock could be purchased first, and this raised a problem. If a firm went through this "double play," buying up the stock first and then using the stock to obtain the assets, was it not violating the law?

The Federal Trade Commission thought so. The law certainly did not specify that those who broke its provisions could gain immunity from its penalties by subsequently purchasing something else, such as assets! Yet in a five-to-four decision, with Justices Brandeis, Taft, Holmes, and Stone dissenting, the Court held in 1926 that where a corporation had gone through this double play the Commission was powerless to take effective action.[17] Specifically, the Court held that the Commission's only authority in cases of this kind was to order a divestiture of the stock of the acquired corporation—which, of course, had been automatically made valueless by the transfer of assets. The Court, in effect, said that the Commission was quite free to use the power which Congress had conferred upon it, as long as it confined the use of that power to ordering the divestiture of pieces of paper which happened to be worthless.

As a result of these decisions, plus an additional decision in the *Arrow-Hart* and *Hegeman* case which further widened the loophole, the Commission was completely deprived of power to halt acquisitions of stock when they are followed by acquisitions of assets. Today, when the Commission takes action to halt the acquisition of stock, it usually finds that, before it can enter its order, the acquiring company has bought up the assets, thus removing the case from the Commission's jurisdiction.

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[17] *Federal Trade Commission* vs. *Western Meat Co.; Thatcher Mfg. Co.* vs. *Federal Trade Commission; Swift & Co.* vs. *Federal Trade Commission* (272 U. S. 554; 1926).

A typical instance of the futility of attempting to enforce Section 7 is the case of the Consolidated Grocers Corporation. Through a number of stock acquisitions in competing corporations, Consolidated Grocers had become in 1945 the largest wholesale grocery in the country with assets of 20 million dollars and annual sales of 100 millions. It occupied a leading position in the wholesale grocery trade in numerous important trade areas, including Chicago, Baltimore, and Canton, Ohio. Since its acquisitions took the form of the purchase of stock, the Commission issued a complaint in 1946, charging a violation of Section 7. But while the case was in the very process of being tried, the corporation acquired the assets of its subsidiary concerns which it had previously controlled only through stock ownership and dissolved the subsidiaries. The Commission had no alternative but to dismiss the case, which it did in February, 1947. It is this situation which recently led the Commission to complain bitterly that "when the Commission tries to prevent acquisitions which take the form of purchases of stock, it usually finds that it is chasing a vanishing will-o'-the-wisp."[18]

The present impotence of the law raises the question as to why Congress, in granting the Commission power to prevent purchases of stock, did not also give it the power to move against acquisitions of assets. Inasmuch as purchases of assets are more binding and lasting, and thus more destructive to competition, this omission seems particularly paradoxical. The answer lies in the fact that at the time when Congress enacted the Clayton Act, most acquisitions took the form of stock purchases. By comparison, acquisitions of assets were almost unknown.

The economic background behind the passage of the Clayton Act in 1914 was the great merger movement which began at the very end of the nineteenth century and extended through 1907. During this period, which witnessed the birth of such huge consolidations as the U. S. Steel Corporation, most mergers were effected through the purchase of stock. There were solid reasons behind this predominance of stock acquisitions. In the first place, it is much easier to purchase stock than assets. This is especially true in the case of holding companies, which mushroomed during this early merger movement, since the holding company can readily exchange some of its shares for the stock of the company to be absorbed. And in the second place, stock acquisitions are peculiarly suitable in any era which is characterized by the flotation of enormous amounts of watered stock. The prevailing method of promoters in bringing together these huge consolidations was to form a great holding company, which would then issue under its own name vast amounts of stock. Part of the stock so issued would be used to pay off the owners of the separate companies absorbed in the consolidation. The greater the amount of watered stock, the easier was it to absorb companies through the medium of stock transfers.

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[18] *The Present Trend of Corporate Mergers and Acquisitions* (Federal Trade Commission, 1947), p. 3.

That acquisitions of stock were indeed the customary and prevailing method of absorbing competitors was forcibly brought out by Justice Stone in his dissenting opinion in the *Arrow-Hart* and *Hegeman* case. He said that corporate mergers were "commonly" effected through stock acquisitions, that "only in rare instances" would a merger be successful without advance acquisition of working stock control, that such control was "the normal first step toward consolidation," that it was by that process most consolidations had been brought about, that this was "the first and usual step," and that the statute therefore reached the evil of corporate mergers "in its most usual form by forbidding the first step."[19]

The plain fact of the matter is that Congress simply did not foresee —nor could it reasonably be expected to foresee—the loophole implicit in the possibility of acquisitions of assets. It took action against the customary and prevalent form of mergers. Its intent was quite clear. It wanted to stop the growth of monopoly. In a report dated July 22, 1914, which accompanied the Clayton Act, the Senate Judiciary Committee said:

> Broadly stated, the bill, in its treatment of unlawful restraints and monopolies, seeks to prohibit and make unlawful certain trade practices which, as a rule, singly and in themselves, are not covered by the Act of July 2, 1890 (the Sherman Act) or other existing antitrust acts and thus, by making these practices illegal, *to arrest the creation of trusts, conspiracies, and monopolies in their incipiency and before consummation.*[20] (Italics added.)

It is difficult to conceive of a more explicit expression of intent. Yet the Court, as in the case of the provisions of the Sherman Act relating to mergers and consolidations, nullified the law, and the extreme length to which the Court went in nullifying the law—holding, in effect, that a violation was perfectly legal, if followed by the acquisition of something not mentioned in the law—clearly reveals the one consistent element in the Court's treatment of the antitrust laws—its refusal to take effective action against the fundamental problem of size and power.

For several years Senator O'Mahoney and I have regularly introduced into the Congress bills designed to plug this outstanding loophole in the law and give to the Federal Trade Commission the same power to prevent acquisitions of assets as it now has in regard to acquisitions of stock. It may interest you to know that twice—that is, in both the 79th (Democratic) and the 80th (Republican) Congresses—a bill designed to accomplish this objective has been approved by a subcommittee of the House Judiciary Committee; twice it has been approved by the full House Judiciary Committee; and twice it has been pigeonholed by the Rules Committee. On both occasions the reason given by the Rules Committee was the absence of time owing to an early adjournment of Congress. It is certainly to be hoped that at this meeting of Congress the Rules Committee will not be able to use this excuse and will permit the elected representatives of the people to debate and vote on this bill.

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[19] 291 U. S. 587, 600, 601.

[20] Senate Committee on the Judiciary, S. Rept. No. 698, 63rd Cong., 2nd sess., July 22, 1914, to accompany H.R. 15657, p. 1.

The bill before the House at the present time is known as HR-3736. In report No. 596 dated June 17, 1947, by Representative John Gwynne (Republican) of Iowa, the majority of the Judiciary Committee stated:

> The history of legislation previously adopted to prevent monopoly, the great increase in recent years of competition-destroying mergers, the damage to small business, the blighting of opportunity for our young people—all cry out for the enactment of legislation to stop the rising tide of monopoly.

The report concludes with these words:

> In adopting the Sherman Act and later the Clayton Act, the Congress, without partisan division, gave expression to a virtually unanimous demand that our competitive economic system be protected against those forces of monopoly which would destroy it. The platforms of both major political parties have consistenly carried planks approving the course thus charted. Both President Hoover and the later President Roosevelt recommended tightening up of the Sherman and Clayton Acts. President Truman has specifically recommended this amendment to the Clayton Act.

It is my personal conviction, if the Rules Committee ever permits this bill to come on the floor, that it will be passed by the House of Representatives, that it will be passed by the Senate, that it will be signed by the President, and that it will thus become the law of the land.

4. *Reduce Existing Concentration.* It should be realized of course that this pending bill is designed to deal only with future mergers and acquisitions. It does not provide the antitrust agencies with any additional means of reducing the existing high levels of concentration. Although the importance of providing a check upon future mergers and acquisitions can hardly be exaggerated, especially in view of the current merger movement, yet it must be recognized that in many industries concentration has already reached such high levels that effective price competition has practically disappeared. In such industries a few large corporations have already attained such size and power that without buying up a single additional firm they are in a position to determine the industry's price and production policies and to control the market generally. How, then, is this problem of existing concentration to be met?

Before advancing any particular recommendation, it might be well first to make a brief review of the major problems that stand in the way of an effective program of "divorce, divestiture, and dissolution," as the Department of Justice terms it, or "divorce, divestiture and disillusionment," as one rather cynical lawyer of the Department has termed it. First, there is the problem of the judicial interpretation of the law in regard to cases of this type; and second, there is the administrative problem of developing new procedures which would enable such cases to be really effective in terms of economic results and to move with reasonable rapidity, without sacrificing the fundamental legal rights of the parties involved.

Of course, all of the legal decisions, as mentioned above, which nullify the effectiveness of the Sherman Act as a means of halting mergers and acquisitions also nullify the effectiveness of that law as a means of reducing existing concentration.

There has, however, been a new legal development on this question of existing concentration in the form of the decision in the *Aluminum* case. The Supreme Court withdrew itself from that case on the grounds that several of its members had been officials of the Department of Justice at the time that the case was in process, and a decision was therefore rendered by a special court of last resort, headed by Justice Learned Hand. The court introduced the novel doctrine that 90 per cent control of an industry was per se a violation of the Sherman Act, and that the existence of unlawful practices was not necessary to prove a violation of the law.

Actually, it happened that the Aluminum Company of America was found guilty of such a practice. It had exercised an illegal price squeeze on its nonintegrated competitors, forcing them to pay a relatively high price for the raw ingot which they had to buy from the Aluminum Company, and then holding its own price on the competitive product, aluminum sheets, at a relatively low level. But the existence of such practices was incidental; 90 per cent control was too much. Size and power, standing by themselves, were held illegal.

There are, however, important qualifications to even this modest departure from the old doctrine. In the first place, the idea that 90 per cent control is in itself illegal was a ruling of a special court and has not been endorsed by the Supreme Court.[21]

In the second place, the special court itself qualified the new doctrine by holding that it was doubtful that 64 per cent would be enough to constitute an unlawful monopoly and that 33 per cent is certainly not enough.[22] In the *International Harvester* case, the Supreme Court had ruled that 64 per cent was definitely not enough.

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[21] It is true that in the recent *Tobacco* case the Supreme Court stated that it welcomed the opportunity to endorse certain statements in the *Aluminum* case opinion. But the statements that were endorsed were to the effect that a monopoly cannot be disassociated from its power, that its power cannot be disassociated from its exercise, and that if 90 per cent of the ingot producers had combined it would have constituted an unlawful monopoly. (328 U. S. 813-814.)

It is difficult, indeed, to derive much encouragement from the *Aluminum* decision, since its actual application to American industry would have little effect upon competitive conditions. If the 90 per cent rule were to be adopted, it would not affect more than a handful of American industries. In 1937 there were only twenty-one important products (those with an annual value of over 10 million dollars) in which the largest four producers accounted for 90 per cent or more of the total output. Consequently, there are probably fewer than half a dozen important products in which the largest single firm accounts for more than 90 per cent of the output.

If the Supreme Court were to recede to the 64 per cent "doubtful" point—an unlikely possibility—the scope of possible action would, of course, be materially increased.[23] However, such a ruling would still permit an entire industry to be divided between only two firms, one controlling 63 per cent and the other holding the remaining 37 per cent. To cite a specific example, if the 64 per cent point were adopted, there would be no definite legal bar in the steel industry to a merger of the eight concerns next in size to U. S. Steel into one company, which would represent 63 per cent of the industry, and which, coupled with U. S. Steel's one-third, would put some 96 per cent of the industry into the hands of two corporations.

Hence, the most liberal interpretation which could possibly be placed on the *Aluminum* decision would still be subject to the criticism of former Assistant Attorney General Berge that the Sherman Act has merely set up the "domination of the few as a substitute for the domination of the one."

The second problem concerning the "dissolution" program, that of administrative procedures, is nearly as formidable as the question of judicial interpretation. From this point of view alone, the process of "unscrambling the eggs" is not an easy one. What standards are the antitrust agencies to utilize in determining such questions as: whether or not a specific corporation should be dissolved; how many units should it be divided into; what should be the size and character of the resultant units; who should be permitted to own them, what measures should be adopted to prevent the resulting units from coalescing in some community of interest (as took place following the formal dissolution of the anthracite coal mining companies from the railroads); how are the fundamental economic considerations of efficiency and competitive results to receive their due and proper importance in what is formally a legal procedure? In regard to this last question we must not forget the immortal words of the Supreme Court in resisting the arguments of Mr. Brandeis that the old tobacco trust be split up into a greater number of units:

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[22] 148 F. 2d 416, 424.

[23] The TNEC found that of 1,807 census products, there were only 97 of which the leading producer accounted for over 65 per cent of the nation's output (and they represented only 5.3 per cent of the total number and 2.3 per cent of the total value of all products surveyed); the leading producer accounted for over 60 per cent of the output of only 152 products (only 8.1 per cent of the total number and 3.3 per cent of the total value). (Cf. TNEC Monograph No. 27, *The Structure of Industry*, p. 292.)

> This whole line of argument deals with the economics of the tobacco business. No doubt the novel problem presented to this Court is connected with questions of economics as well as with questions of law. But, this is a court of law, not a Commerce Commission, and the legal side of the proposition would seem to be the controlling one.[24]

I do not know the answers to these and many other related questions. I only know, first, that the problem of existing size must be dealt with; second, that even under the most favorable interpretation of the *Aluminum* decision, the existing law does not provide an adequate means of achieving this objective; and third, that the administrative problems involved in the program are of no small amount.

I know that my friend, Mr. Raymond, believes that he has the practical answer in the form of his limitist proposal which would impose some arbitrary limitation on the size of corporations, such as a general limitation that no firm with over 10,000 employees should have more than one shipping point. While this is, indeed, an interesting proposal, my offhand reaction is that it is too arbitrary and inflexible both from an economic and a political point of view.

Since I do not have the answers to these legal and administrative questions, and since the Temporary National Economic Committee did not go into this question of breaking up existing size, I propose that the old Temporary National Economic Committee be reconstituted and directed to obtain expert information and advice on this subject; and, on the basis of such information, to develop a new program of dissolution, to be accompanied by reports to the Congress and recommendations for specific legislation.

5. *Remove the Financial Control Over Industry.* The removal of the financial control over industry is another one of those very broad problems, similar to that of reducing existing concentration, which requires more intensive analysis and study before I would care to advance any specific legislative proposal.

6. *Use the Economic Fact-Finding Powers of the Federal Trade Commission.* Finally, I wish to call your attention to a provision of law

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[24] 191 Fed. Rep., 376.

which already exists, which requires no legislative changes, and which could become an extraordinarily effective measure in the public interest. I am speaking of Section 6 of the Federal Trade Commission Act, which grants to the Commission far-reaching powers for the purpose of conducting economic investigations. The only thing required to make this law effective is appropriations.

The origin of this section has an exceedingly interesting story. After passing the Sherman Act in 1890, the Congress gradually became aware of the existence in many lines of industry of large corporations, which through their mere size and power, implemented by such specific practices as price leadership, could control the market without resorting to conspiracy or collusion or illegal activities of any kind. Therefore Congress, convinced of the "curative power of publicity," felt that, at the very least, the people and their representatives in Congress should be informed of the economic practices and behavior of these large corporations—their prices, costs, profits, economic power, business practices, etc. With this thought in mind, Congress on February 14, 1903, established the Bureau of Corporations with power and authority "to make . . . diligent investigation into the organization, conduct and management of the business of any corporation, joint stock company, or corporate combination engaged in commerce." When the Federal Trade Commission was established in 1914, these fact-finding powers were enlarged and transferred to the new agency. It was under this section that the Commission has conducted its economic investigations which not only have resulted in new and improved legislation but also have acted as an important restraining influence upon the policies and activities of many of the nation's largest corporations.

It is indeed a tragedy, considering its proven usefulness, that this highly useful function has been permitted to atrophy over the years. As early as 1927, Professor William Z. Ripley, of Harvard, regretfully commented upon the "innocuous desuetude" of Section 6 which he termed as a "stone dead letter." Urging a vigorous use of the fact-finding powers, Professor Ripley stated:

> This statute [the FTC Act] . . . contains in Section 6 a positive delegation of authority to this body which is entirely adequate to the performance of the service so greatly needed at the present time. . . . The record of debate upon the subject makes it clear that Congress intended this work to constitute one of its chief activities . . . here then we have plainly indicated the most obvious, the simplest, the most effective remedy of all. . . . No legislation is necessary. There is nothing revolutionary about it—nothing paternalistic. . . . Let the word go forth that the Federal Trade Commission is henceforward to address itself vigorously to the matter of adequate and intelligent corporate publicity, and, taken in conjunction with the help of agencies already at work, the thing is as good as done.[25]

At one time the Economics Division of the Federal Trade Commission numbered over 600 persons with over 200 economists and other professional employees. At the present time, as I have indicated above, it is down to the staggering sum of 8 economists, who, in addition to carrying out these broad powers of Section 6, must also prepare all of the economic material required in the Commission's legal cases. I think it is about time that we resurrect this important provision of law which Professor Ripley termed "the most effective remedy of all."

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[25] William Z. Ripley, *Main Street and Wall Street* (Little, Brown, 1927), pp. 222-228.

I wish to mention briefly a number of additional points which I do not have time to discuss at length. It is my personal opinion that an effective antitrust program represents only "one side of the penny." The other side consists of certain types of affirmative assistance which should be made available to small business, particularly financial aid and industrial research. In regard to the former, I would like to see the RFC greatly accelerate its program of loans to small business; in regard to the latter, I would like to see Congress pass some bill, such as that proposed by Senator Fulbright, designed to bring to small business the benefits of modern science and technology.

In addition, there are other problems, particularly patents and cartels, which are of such extraordinary complexity that I am unable to discuss them adequately within the time limits available to me. Also I am withholding comment on the basing point system for the reason that this whole subject is now before the Supreme Court in the form of the Federal Trade Commission's case against the Cement Institute.

DISCUSSION

Corwin D. Edwards: As Mr. Berge and Mr. Kefauver have shown, we are now in the stage of the enforcement of the antitrust laws which we should have reached about 1900. In the development of any law, particularly one as broad as the antitrust statutes, enactment is typically followed by a period of judicial interpretation, during which the scope and meaning of the law are determined. During this period there is typically great reluctance to comply with the law in any respect in which a reasonable doubt can be raised. After a decade or so, the limits of the statute are known, and there may ensue a period of amendment designed to remedy weaknesses. Subsequently, the law's impact is determined by the effectiveness of enforcement and the degree of voluntary acceptance and compliance which can be obtained.

In the case of the Sherman Act, cases have been so few and have been brought so slowly, largely because of the lack of appropriations which has been stressed here, that the period of interpretation in the courts has lasted half a century instead of a decade. The initiation of substantial enforcement activity about 1939 led in the usual manner to judicial decision of many doubtful issues, and thus we are on the verge of knowing what the law means. It still remains to be seen whether habits of noncompliance which have been built up during nearly sixty years can be overcome as they might well have been had the statute been enforced vigorously from the beginning.

Nevertheless, there are still major unsettled issues as to the meaning of the Sherman Act. The most important has to do with the meaning of monopoly. The courts have vacillated between the view that a concern is a monopoly if it occupies so much of the market as to give it monopoly power and the view that mere size is no offense and a concern is a monopoly if it behaves like one. Under the former interpretation the percentage of the market occupied is highly relevant, but there is so much difficulty in deciding where a market leaves off that percentage of occupancy often cannot be very clearly determined. Under the latter interpretation we need tests of monopolistic behavior. Coercive attacks upon competitors and devices designed to exclude them from markets are relatively easy to identify and for this reason are given substantial weight. But the courts have lacked equally clear standards for identifying monopolistic exploitation of the consumer.

The economic profession itself must bear a part of the responsibility for this lack. Our theorists have offered the world two broad types of price theory. One describes the characteristics of perfect competition and perfect monopoly but admits that these pure types never actually exist. The other describes imperfect or monopolistic competition in such terms that the description is equally applicable to the corner grocery store and the greatest industrial giant. This latter type of theory provides no guide for identifying significant differences in degree or determining their relevance to questions of public policy. Neither the theory of market phenomena which are found nowhere nor that of market phenomena which are found everywhere can give the courts a satisfactory basis for work.

Moreover, it is questionable whether all of the relevant phenomena of business size and power can be dealt with satisfactorily under our present type of antimonopoly statute. Monopoly power is power over a particular product or group of products. Today great business enterprises obtain much of their power from their over-all size as measured by assets or income and from structural characteristics such as vertical integration, which permits them to squeeze competitors who must look to them for supplies or markets, and horizontal diversification, which permits them to remain indifferent to their profits or losses in any one market and thus to follow tactics which may destroy less diversified competitors. Although the concept of monopoly has been broadened in recent cases, it is questionable whether it can ever embrace all of the relevant phenomena of great size and of business structure. It is probable that new laws will be needed to cope with this type of power.

Apart from questions of the interpretation, amendment, and enforcement of the antitrust laws, a major problem for the competitive policy consists in the collaboration of business groups and government for purposes similar to those of private monopoly. During my own eleven years in government, I spent a great deal of my time resisting proposals that the government should undertake various types of controls over business for restrictive ends. Demands that the antitrust laws be relaxed are common. Ordinarily those who make the demand would prefer relaxation without the imposition of any new control, but ordinarily this privilege would not be granted. Accordingly they typically ask either to be allowed to substitute some form of self-government, in which the business group itself is supposed to act collectively to prevent abuses of its own power, or else some relatively ineffective form of public control. The self-government type of control was discredited by the abuses which developed under NRA. Consequently, later proposals have usually accepted the idea of public control, but with loose standards, lack of adequate surveillance, and insufficient powers to protect the public interest. Through the multiplication of such exceptions to the competitive policy, it would be possible to sap the strength from the antitrust policy, even if prosecutions were fully effective within the area where the rule of competition remained in force. Avoidance of such surrender rests proximately with the lawmaking agencies of government and ultimately with the people themselves.

MYRON W. WATKINS: This meeting is fortunate in having an expression of their views on the position and prospects of antitrust policy by an able representative of the lawmaking branch of the government and by a man who has distinguished himself in the law-enforcement branch. Their chief points of agreement are two. First, both take as a point of departure the premise that antitrust policy has fallen far short of attaining its goal. Few will challenge that! Second, both urge the need for larger appropriations to enforcement agencies to enable them to expand and intensify their work. Who does not agree on the "need for more money," these days?

But neither of the principal speakers is satisfied that the public can "buy" effective competition simply by putting up more money. The "price" of competition is higher than that, today, after half a century of budgetary niggardliness and desultory defense of the competitive system. What is the current price for competition? On this point the positions of Mr. Kefauver and Mr. Berge contrast sharply. Mr. Kefauver tells us: "If you want competition, you'll have to change the present statutes and add new ones." But Mr. Berge would have none of this, or very little, as we know partly from his paper, partly from his record. The gist of the trouble as he sees it, is not insufficient or ill-conceived legislation but faulty, or misguided, interpretation and application. Thus, in effect, the Congressman with rare humility points the finger of blame at Congress and, on the other hand, the public prosecutor magnanimously points the finger of blame at the courts and the Executive. But we should add at once that the wagging finger wags most emphatically at the bench. Probably that is more from habit than from premeditation! At any rate, judicial responsibility gets the primary emphasis.

I want at the outset to stress my agreement in principle with both speakers. It may look like self-contradiction to endorse two positions just described as "contrasting sharply," but it is not. We need both new legislation and a new construction—perhaps above all, a new conception—of existing legislation.

But as the diplomats have taught us—even though they appear never to have learned the lesson themselves—"agreement in principle" can cover a multitude of sins, or at any rate of potential sources of discord. So I must also record my sharp disagreement with the views—implicit and explicit—of both speakers on what is required to overcome the shortcomings of antitrust enforcement and restore an effectively competitive economy. As it would serve no useful purpose to rephrase the general principles or to reiterate the detailed points on which I am happy to agree with the authors of these papers, from here on I shall be chiefly a critic.

The supplementary legislative program Mr. Kefauver proposes seems to me grossly inadequate for its professed purpose. A glaring omission is of legislation repealing some notable blunders now on the statute books, such as the Miller-Tydings Amendment and the Webb-Pomerene Act—in its present form, at least. But the most serious deficiency is the failure to recognize the obstructive if not emasculatory effect on antitrust enforcement of the present pattern of corporation law. A comprehensive review and incisive revision of the policy embodied in existing incorporation statutes is imperative, if antitrust law is to be adequately implemented and genuine competition revived.

Though one may agree with Mr. Berge, as I do, that a major share of responsibility for the miscarriage of antitrust policy rests on the courts and that the flexibility of judicial opinion affords some ground for anticipating a tardy correction of past mistakes, yet it is quite another matter to extract from recent decisions as much elixir for antitrust policy as he does. Undoubtedly, Holmes's classic dictum that the life of the law is experience, not logic, is again being verified. But the drift of judicial opinion that Mr. Berge thinks he discerns seems to me to be neither so novel nor so clear and positive as he earnestly endeavors to make out. The fact that he does not leave open to suspicion the paternity of the newborn idea he handles so tenderly—it's a wish—need not of itself be taken as an aspersion on the infant.

After all, wishful thinking may sometimes be creative. But are the recent antitrust cases as pregnant with those fair twins, economic welfare and economic democracy, as Mr. Berge so artfully tries to persuade us? I doubt it.

Mr. Berge makes much of the distinction between what he calls "monopoly cases" and "restraint of trade cases." He speaks repeatedly of the "monopoly prohibition of the Sherman Act." But just as it has often been remarked that the statute omits any reference to "competition," it is pertinent to recall here that neither does it mention "monopoly." It speaks only of "monopolizing" and "attempts to monopolize." To emphasize this distinction is not to quibble over words. The distinction is important, and it is important not only in logic and in legal history but as well, I venture to suggest, in any analysis and forecast of the course of adjudication. Monopolizing or attempting to monopolize implies, indeed necessarily involves, a course of conduct. It is a mode of action. On the other hand, monopoly is a condition. It is something one can have, possess, hold, in contrast to monopolizing which is something one can do. And it is worth while reiterating that the common law itself knew no "doctrine of monopoly"—precisely as it was devoid of any "principle of competition."

What, then, are monopoly cases? My answer to that question is that, from the standpoint of Mr. Berge's use of the term, namely, from the standpoint of the legal criteria applicable to different forms of business organization or behavior, monopoly cases are, tersely, all antitrust cases! Similarly, unless I am mistaken, all antitrust cases are "restraint of trade" cases. The *Eastern States Lumber* case was no less a "monopoly case" than the *Shoe Machinery* case, and the *Shoe Machinery* case was no less a "restraint of trade" case than the *Eastern States Lumber* case. Likewise the *U.S. Steel* and the *Alcoa* cases were no less "restraint of trade" cases than the *Window Glass Manufacturers* and the *Cement Institute* cases, and vice versa. I venture to state that the courts would have decided each of these cases, and probably all other antitrust cases on which they have passed, precisely the same way they did dispose of them under whichever section of the Sherman Act the government had proceeded.

If it be replied that the distinction between "monopoly cases" and "restraint of trade" cases is merely one between different economic situations to which an integrally unified antitrust policy is applicable and that the distinction has nothing to do with the statutory division between Sections 1 and 2 of the Sherman Act, my answer is that to make the distinction turn solely on the factual situation—the presence or absence of a proprietary tie-up—meets two serious objections. First, it misses the point of the recent court decisions and opinions. It robs them of most, if not all, of their true significance and real promise. For their vital import, as I see it, is precisely in the possibility they open up of a resurrection of Section 2 from long administrative neglect and judicial oblivion. It has too long been overlooked that Section 2, unlike Section 1, does not make collusion an essential element of an offense under the law. It is true that Section 2 also condemns conspiracy to monopolize, but it is only as one form of the basic offense of monopolizing. To ignore the possibility of proceeding under Section 2 without reference to conspiracy and to try, as in the *Yellow Cab* case, to provide a basis for a charge of collusion by treating parent and subsidiary corporations as independent enterprises is to add one more fiction to the dozens that already bedevil corporate regulation.

While in the *Tobacco* case the Department of Justice chose to frame the indictment in the time-honored terms of conspiracy, the Supreme Court opinion strongly suggests that by proceeding on that basis it weakened rather than strengthened its case. "Entirely from circumstantial evidence," the Court said in upholding the verdict, "the jury found that a combination or conspiracy existed among the defendants . . . with power and intent to exclude competitors to such a substantial extent as to violate the Sherman Act." As I read that sentence, the effective leverage is in the final clause. In other words, in spite of the flimsy evidence of collusion, not because of it, the Court sustained the verdict.

But the second, and hardly less important, objection to distinguishing "monopoly cases" from "restraint of trade" cases simply on a formal economic basis and attempting to amalgamate them—treat them as one—from the legal standpoint is to give a twist to the recent court decisions that, in my opinion, seriously distorts the public economic policy laid down in the Sherman Act. If, as I doubt it ever will and would very much regret if it ever did, the Supreme Court should rule that under existing law size per se is offensive, as Mr. Berge suggests hopefully that, by applying "similar reasoning" to "monopoly cases" and "restraint of trade cases," it is on the verge of doing, perverion of antitrust policy would in my judgment be the result. Did the fact alone of Ford's holding for almost two decades a pre-eminent position in the low-priced automobile market with undoubted power to set the price in that field make it vulnerable to antitrust attack and subject to compulsory disintegration? I doubt it. Yet such would be the necessary outcome of the sort of antitrust interpretation for which Mr. Berge is contending.

Is the position here taken incompatible with the Supreme Court's interpretation of the law in the *International Salt* and the *Tobacco* cases? On the contrary, the opinions in those cases, I believe, clearly confirm the view that something more than size is required to make out an offense under Section 2 of the Act. The sole issue before the Supreme Court in the *Tobacco* case was, as Mr. Berge says, whether actual exclusion of competitors was a necessary element of the crime. The holding that it was not represented no novel advance. Such has been settled doctrine for at least forty years, since the first *Swift* case. And Mr. Justice Burton, after quoting from the second *Swift* case that "size carries with it an opportunity for abuse that is not to be ignored when the opportunity is proved to have been utilized in the past," added that the evidence justified the finding by the jury in the *Tobacco* case of "an intent to use this power to maintain a monopoly." This seems to me to be not only correct law but good law: that the power coupled with the intent to exclude competitors equals "monopolizing." But this, surely, is a far cry from Mr. Berge's contention that size, or exclusionary power, alone is offensive to the law.

The *International Salt* case certainly changes nothing in and adds nothing to this construction of the law. The actual use of exclusionary tactics has always been regarded as sufficient evidence of both the power and the intent to exclude others. Nor does the *Alcoa* case stand on a different footing. For I must reluctantly dispute Mr. Berge's assertion that "the company was not found to be guilty of abuses." The court specifically condemned the price squeeze on aluminum sheet, and as I read the opinion Alcoa's market behavior in that respect was not an inconsequential matter.

Finally, the main ground for skepticism about the alleged prospects of a renaissance of antitrust policy through judicial reinterpretation of the law lies in the character of the decrees entered in these recent cases—a matter on which Mr. Berge was prudently silent. In the *Tobacco* case, the Big Three remain in undisturbed possession of whatever monopolistic power they previously possessed. Alcoa stands intact, not even its paternal ties to Alted across the border being weakened, let alone severed. The most likely upshot of the *National Lead* decree is the substitution of one monopoly partner for another as the "senior member" of the group controlling the titanium market. Under the court's "adverse" decree, International Salt will continue to enjoy, and may very well increase, monopoly revenue from its patents used in defiance of the law, notwithstanding that its larger rival, Morton Salt, was earlier compelled, in a similar conjuncture, to forfeit such revenue.

On the basis of such empty "victories" as these how can one be sanguine of a judicial revindication of antitrust policy? Perhaps, after all, Mr. Kefauver is opening the right door, the one that will let some fresh air into this stuffy courtroom.

FRED I. RAYMOND: Mr. Berge and Mr. Kefauver seem to agree with many others that the present extent of economic concentration must be broken down if we are to maintain the private enterprise system in America. It would seem that Mr. Berge was developing the best possible expectations for accomplishing this result under our present antitrust laws, whereas Mr. Kefauver was developing the need for new legislation to accomplish this result.

I can find little disagreement with either of these addresses, but I would add a few remarks in support of the need for new legislation on the grounds that the present antitrust laws have failed in the past and must continue to fail in the future. As evidence of past failure of the antitrust laws, it would be hard to cite better testimony than the addresses just made by Mr. Berge and Mr. Kefauver.

As to the probability of future failure in breaking up concentration under the antitrust laws, I cite, as Mr. Berge has, that the Sherman Act has been on our books for fifty-seven years. During this period we have had ten different national administrations with at least six different policies of enforcement and six different policies of interpreting the meaning of the Act. Thus we have had a vacillating policy of government toward monopoly in contrast to the constant policy of resistance on the part of those against whom the law has been directed. To a large extent, a corporation charged with violation during one administration could expect a slackening of prosecution if it could postpone a decision until there should be a change in the national administration.

If we realize that due to delaying technicalities which a suspected violator can introduce to hamper the Justice Department, it often takes two years to prepare an antitrust case for prosecution and seven years more to bring it to final decision, while a national administration seldom lasts for more than eight years, then we see how remote is the chance that any important antitrust prosecution will be started and finished under the same policy of government. Add to this the effect and ever present possibility of compromise settlements through negotiation or consent decrees, and the task of enforcement becomes almost imponderable.

Mr. Berge is somewhat hopeful of better accomplishment in the future as a result of recent court decisions, but these recent decisions are in a large measure reversals of previous decisions. Past performance indicates that these decisions are no evidence that future decisions will follow the same pattern. Moreover, we can have no assurance that the present government policy of vigorous enforcement will continue. Already we are hearing a proposal that prosecutions under the antitrust laws shall be discontinued temporarily where the suspected violator reduces prices. After all, it seems inescapable that fifty-seven years of failure under the antitrust laws is evidence enough to indicate the probability of failure in the future.

Mr. Kefauver has mentioned my proposal for a statutory limit on size for corporations with more than one shipping point, and President Douglas has asked me to discuss it briefly in relation to the Sherman Act. In effect, this limit would apply only to chains of two or more factories or stores under a single management, and it would not apply to single plants or stores under independent management. Thus, under this limit, we would eliminate all possibility of monopoly or domination through the combination of chain operations and unlimited total size.

As to the requirement for flexibility, it should be noted that there are two kinds of flexibility in laws. One is flexibility of application, which insures sufficient latitude for individual action. The other is flexibility of interpretation, which leads to conflicting decisions in the courts and consequent impossibility of enforcement.

My proposal has flexibility of application because it places no limit on total size alone and no limit on number of places of business alone.

A single steel factory or automobile factory could have 100,000 employees or 500,000 employees. In fact, as I have framed my proposal, a great central factory could even have feeder factories and raw material sources remote from the central factory, provided only that all the products of the feeders went to the central factory for shipment to purchasers. Thus there would be no restraint to low-cost mass production.

With the limit on chains set at 2,000 employees, a single chain store organization could operate two stores of 1,000 employees each or 200 stores of 10 employees each or 1,000 stores of 2 employees each. That such chains are large enough for low-cost mass distribution is amply proved by the fact that many chains of this size are now selling at the same prices as the largest chains.

Under this limit, then, we would retain all the advantages of unlimited total size in production and all the advantages of chain operations in distribution. But we would eliminate all possibility of excessive concentration of power through the combination of the two. And despite all this flexibility of application, there would still be no possibility for the disaster of flexibility of interpretation. Such a law would give us a permanent policy of government which would not be subject to change with changes of administrative or judicial personnel.

Mr. Kefauver has mentioned 10,000 employees as a possible total size limit for chains, whereas I have mentioned a limit of 2,000. Both of these figures are used only as examples. If the proposed law should become a possibility, I have in mind that the Federal Trade Commission would make a survey to determine how many business organizations would have to alter their structures with the limit set at various figures. I would expect a graph of the results of this survey to show a decided drop at some point. For example, we might find that to increase the limit from 2,000 to 2,100 would reduce the number of affected organizations by 5 per cent whereas an increase from 2,100 to 2,200 would reduce the number of affected organizations by 20 per cent. Then 2,200 would be the drop off point, and we would use 2,200 as the limit in the final law. Thereby we would greatly simplify the process of compliance and enforcement without materially altering the effect of the law.

This is practical legislation as opposed to vague and indeterminate legislation such as the antitrust laws. It is practical to demand that Congress shall say what its laws mean instead of asking the courts to decide what those laws mean. Surely we cannot expect the courts to take action against the fundamental problem of size and power when Congress itself refuses to do so.

To make my proposal specific, I have prepared a detailed draft of such a law as I have outlined which I will be pleased to send to interested persons on request. I hope the members of this Association may give it their serious consideration as an answer to the unsolved problem of concentration and make suggestions for change or proposals for a better law.

Today we are at war with various kinds of collectivism, and the whole issue in that war is the valid charge that our present brand of capitalism produces an oppressive concentration of wealth and power.

It is not enough that we shall countercharge that collectivism produces a still greater concentration of power. The masses who support it do so only because they see it as the only means to break up an existing oppressive concentration.

We who believe in private enterprise cannot prudently expect long to resist the onslaught of collectivism if we maintain the present concentration of economic power in our own system. If we would win this war, we must have a new instrument of law which will function directly and surely to break up our existing concentration without the delays and probabilities of failure inherent in our present antitrust laws. With such a new instrument, we shall restore economic soundness to our own system, we shall restore mass confidence in private enterprise, and simultaneously we shall destroy the very roots of collectivism.

BEN W. LEWIS: The two principal papers have followed a traditional pattern and have outlined a familiar, standardized course of action. The preservation of free, capitalistic enterprise can be had only if competition can be kept or made effective. This in turn requires penetrating antitrust statutes, realistically interpreted and aggressively enforced. In the past the fair promise of antitrust enforcement has been defeated by the inadequate or perverse performance of certain forces in our national life; namely, the Supreme Court, the Bureau of the Budget, Congress, the Federal Trade Commission, the Department of Justice, the guild of economists, and the American people. Happily, however, the future is bright. The Supreme Court has become at last both sympathetic and realistic; and there is still time for our antitrust agencies, revitalized and armed with sharper weapons (to be designed, after further study, by a reconstituted TNEC), to sweep to the rescue of our economic system from the monopolistic evils which threaten its destruction.

To come directly to the point of these remarks: I simply do not believe it. In my judgment, the developments and prospects which Messrs. Berge and Kefauver have been talking about relate solely to rear guard action—to rear guard action alone. This does not mean that they are unimportant. But by the same token it does mean that they bear significantly only on the task of rendering more comfortable the declining years of our competitive (*sic!*) free enterprise economy, and not on the matter of its permanent recovery or preservation.

Consider for a moment just what it is in recent antitrust developments that we find to be encouraging. Nearly sixty years after the passage of our basic law against monopoly, the Supreme Court appears ready to concede that an industry occupying over 90 per cent of its field qualifies as an illegal monopoly within the meaning of the Act—and from this we draw hope! The Court has still to decide what to do about the monopoly which it has so daringly found to exist. As teachers of regulation we can now crowd the *Standard Oil, Tobacco, Steel,* and *Harvester* cases into the one-hour preliminary lecture on "The Sherman Law and the Courts: Breaking the Path," and devote the rest of the course to pursuing the courts through the intricacies of *Aluminum, Atlantic and Pacific, Tobacco (1946), International Salt,* and *Yellow Taxis.* You know the process: take any three of the cases, extract equal parts of intent, overt acts, power (exerted and unexerted), mitigating circumstances and *stare decisis;* correct for humidity, density of comprehension, and velocity of circulation; add a dash of bitters, stir vigorously in ice, and throw over the left shoulder.

Mr. Berge's interpretation of the recent cases sounds to me convincing enough for present purposes, although you understand that I should not care to be quoted finally to that effect without preparing an appropriate qualifying footnote. But I do not know that Mr. Berge is really right in his interpretation of the Court's position—and neither do you, and neither does Mr. Berge or anyone else, including the Supreme Court—and therein lies the tragedy and the moral. For fifty-seven years we have been playing guessing games with the Sherman Act. It is kind of fun on winter evenings, but it certainly lacks something as a process for working out the pattern of an economic order.

The Sherman Act was put on the books in 1890; in 1947 we have not the foggiest notion of the meaning of the law as it relates to the prime organizational problem that has confronted our economy throughout the full life of the Act—large-scale industrial units. It is easy to lay the blame for the confusion at the door of the Supreme Court, but I will suggest to you that if the Court has failed at any time to express accurately the intent of Congress, it has always been within the competence of Congress (formal competence, that is) to change the law in line with its desires. This observation holds for Section 7 of the Clayton Act, too, as well as for the Sherman Act. Incidentally, neither the Court nor the Congress has ever had anything resembling a consensus from the economics profession on this problem. It is a tough problem, and just possibly the real reason why the issue remains unsettled (and is likely to continue in that state) lies in this fact.

I agree with Congressman Kefauver's recommendations, straight down the line, but with restrained enthusiasm. I hope he gets everything he asks for—but I do not think he will, and I do not think it would satisfy him for long if he did. It will not have escaped your notice that on the really central issue of dealing with concentration, Mr. Kefauver proposes further study rather than decisive action. This provides a way out for Mr. Kefauver and me, but it is a mean trick to play on the "central issue." I am always to be found in favor of "further studies," to provide data necessary to enable us to come to grips "realistically" with our problems, and to provide challenging occupations for our graduates. In all seriousness, however, I am quite confident that tons and tons of additional fascinating and stimulating data will still leave us where we are at the moment—gasping for answers. Definitive answers will not flow from further studies. In short, we have already had about all the help which statistics and "objective facts" can give us on the problem of concentration: from here on in we are alone with our value judgments.

And since you press me for my own value judgment, I shall return to my opening proposition: the free enterprise system, as a system, is on its way out, and the most that we can expect from antitrust laws is that they will make the transition process less painful. I want better antitrust laws, better enforced; but no revision of the antitrust laws, no amount of additional antitrust appropriations, and no extra shots of zeal in antitrust enforcement will be capable, in my judgment, of bolstering competition sufficiently to warrant permanent reliance upon it as the central organizing and regulating force in our economic system. The way is effectively and permanently barred by large-scale industrial, marketing, and labor units. We will not reduce their scale in any significant measure.

I do not argue that competition is absent from our economic system; it is present, and at times it may break out fiercely in the most unexpected places. But it occurs automatically or regularly only in a narrowing area; elsewhere it appears only spasmodically, when someone feels that, as a matter of policy or strategy, a spot of competition would be worth trying. It is true that many people and many firms are involved in competitive activities, but they are meeting competition, not making it. The kind and extent of their competitive conduct is determined by the management of powerful industrial units who are largely free to indulge in as much or as little competition as they see fit—to "take it or leave it." Competition today is sporadic in its operation and quite unpredictable in its effects. It simply is not present in a form and degree that will permit us to rely upon it to perform the highly important duties which the philosophy of "free enterprise" places in its charge. Competition has not been supplanted by complete monopolies engaged in spectacularly evil conduct; what we are confronted with is the quite undramatic development of conditions, short of monopoly, under which competition as a regulatory force is rendered increasingly ineffective. Important economic decisions are not ground out by impersonal processes of competition in an open and driving market; they are made for us by men—relatively few men—whom we do not choose and over whom we have only the most tenuous controls, and irresponsibility as an abiding feature of an economic system is made no more palatable by the fact that the power it represents is not always misused. Free enterprise as we know it, and as we shall continue to know it until we harness it by forces stronger than any competition which we can conjure up and sustain, is really free!

Granted that present-day corporations and corporate empires have been expanded beyond any point that can be defended on grounds of productive efficiency, I still believe that they cannot be reduced and broken up sufficiently to insure effective competition without exacting a greater price than we shall be willing to pay. The scale of industrial operations required to support us in the style to which we have (or should) become accustomed is still so large as to render the resulting "competition" quite undependable as the prime regulator of our economy.

Activity of the sort represented by antitrust measures is immediately necessary, of course. It is important that downtrodden consumers be protected from extortionate prices and restricted supplies. But what we need to realize is not that we are suffering some more or less curable aches and pains because of the erratic malfunctioning of our economic system but rather that we are losing the system itself, that nothing we are likely to do will enable us to regain and maintain it in recognizable form, and that the lack of a system is quite capable of producing chaos even in the United States of America. What, as a people, we need to be concerned about is not the market price of nylons or vacation wages in the steel industry; our real job is somehow to evolve a set of machinery—an economic system—which will turn out the decisions that have to be made on these and millions of other matters of the same kind, continuously, and under conditions that will insure us of as much large-scale enterprise, individual freedom, and social responsibility, in combination, as we want and can get. The time we spend in dreaming up palliatives is not necessarily wasted because we shall need patches and opiates under any system; but what we really need to put our collective backs into, consciously, is the construction of an economic organization to take the place of our disappearing vision of "free enterprise."

Let me make my indictment quite clear: I am not undertaking a shotgun attack on all the inequities and shortcomings of our present way of economic life. Neither am I arguing that our present way of life does not provide quite a lot of us with quite a lot of relatively secure comforts; indeed, it is part of my thesis that the economic ease which we currently enjoy serves to insulate us from any considerable awareness of the loosening processes at work within our economy.

My charge relates to the growth of irresponsibility in the making of economic decisions and the disintegration of free enterprise as a system which this development reflects. The full working out of the process will be slow, but it will continue with deadly certainty. By itself it will precipitate no spectacular crisis, although it will contribute materially to the destructive sweep of any blowup which may be touched off by other forces. We shall have responsibility in the making of economic decisions which affect all of us—an economic system—only when we come generally to recognize irresponsibility even though it be disguised by the most prepossessing instances of good will and social consciousness, and when we are willing to substitute formal collective action for the "automatic" controls, now weakened and vanishing, of "free enterprise." This action (and my guess is that it will take the form largely of enterprise rather than regulation) *can* be effective and it *can* be democratic. That it shall come to be both constitutes the long, hard job ahead of us.

PATENT POLICY

PATENT POLICY

By Floyd L. Vaughan
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The underlying purpose of our patent system is the promotion of public welfare through the stimulation of inventions and the use of them. The attainment of this purpose also requires competition in making better products at less cost and selling them at lower prices, and economic opportunity for individuals and small enterprises.

Evils

Our patent system fails to promote public welfare in many instances because it discourages rather than encourages the inventor, it permits the suppression of patents, and it is a means of creating industrial monopoly and restraining trade.[1]

1. *Discouragement of Inventor.* Patents stimulate inventors mostly through delusion rather than reward. Worthless inventions and weak patents may be expected, of course, to bring the inventor no financial return. On the other hand, many a patentee—the independent inventor especially—has received little or nothing for meritorious inventions. One reason is his lack of ability or facilities for putting his invention into commercial form. Other reasons are litigation, lack of market, and sale of patents for a lump sum rather than on a royalty basis. Patent litigation is notoriously prolonged and expensive. Inventors generally cannot carry such a burden and therefore they seek a buyer for their patents. In most instances the only possible purchaser of an improvement patent is the owner of the patent on the basic invention. Further, a corporation which already has most of the patents in a particular industry provides practically the only market for other patents in its field and, therefore, it can practically dictate the purchase price. It usually insists upon the payment of a lump sum rather than royalties and thus deprives the inventor of the opportunity to receive returns from his patent according to the extent of its importance and use. Needless to say, the inventor's lack of finances and business ability invites the very abuses which discourage him.

These handicaps—litigation, lack of market, and the sale of patent rights in a lump sum rather than on a royalty basis—are either avoided or minimized by the large patent-owning company. It usually has sufficient money and capable lawyers and experts with which to prosecute alleged infringers of its patents and to defend itself from alleged infringement of the patents of others. Such litigation, though a heavy burden in any instance, can be borne by a large corporation while it would overwhelm the individual inventor.

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[1] This analysis appears in F. L. Vaughan, *Economics of Our Patent System.* It is as applicable today as in 1925, when this book was published.

Of increasing importance as a means of lessening and even eliminating patent litigation is the general understanding or actual agreement of two or more patent-owning companies in the same industry not to sue each other for infringement. The expense and uncertainty of litigation and the likelihood of invalidation of their patents encourage them to adopt such a plan. In addition there is usually a friendly relationship between large concerns in the same industry so that each one knows that it can obtain a license under the patents of the other in case a license is necessary. These same companies, however, usually present a belligerent front to any would-be intruder.

Ordinarily the patent-owning corporation experiences no obstacles in the use of an improvement in connection with a basic invention because it usually has the patents on both of them. Any company which owns most or nearly all of the patents in any industry obviously has a market or use for its patents either by manufacturing and selling the products which they cover, or by licensing others to do so.

If two or more concerns have patents in an industry, they may agree that each may use the patented inventions of the others, as illustrated in the automobile industry. Other arrangements, such as cross license agreements with each other, may accomplish the same purpose. In effect, each company finds a market for its set of patents through mutual exchange of patent rights with other important patent-owning competitors in the same field.

The patent-owning corporation does not receive any lump sum for its patents but rather a continuing return from its patents, whether by profit from manufacture or by royalties from licensees.

2. *Suppression of Patents.* The suppression or nonuse of patents is another abuse of our patent system. The causes of this practice suggest its extent. Apparently most patents are not developed because the inventions to which they relate do not have sufficient merit. Moreover, many patents are unused owing to the inadequate finances or the incompetence of inventors. Further, if the owners of improvement patents cannot or will not sell or lease them to the owner of the basic patent, they must be suppressed, or the law defied. On the other hand, obstructive patents covering improvements may necessitate the abandonment of the basic invention. Again, many manufacturers shelve patents rather than scrap existing equipment. Also, the suppression of many patents is incidental to the protection or extension of monopoly.

A company may seek to protect its pivotal idea by enmeshing it in a network of patents covering all the possibilities of embodying the idea; many of these patents are contingent or alternate in character and are suppressed. A far more odious practice is the control of practically all patents relating to a particular industry and therefore the domination of the industry. Many of these patents acquired for this purpose are suppressed. On the other hand, the refusal of the dominant corporation of an industry to buy a relevant patent usually results in its suppression, as there is no other outlet for it. Perhaps the most important group of suppressed patents consists of the hundreds taken out in the United States by foreigners solely for the purpose of reserving this country as a market for their inventions manufactured abroad. From the standpoint of manufacture in this country such patents are certainly suppressed.

If an invention is not developed because it lacks merit, the public gains rather than loses. Nevertheless the patent covering it may clog the stream of inventive thought to which it relates. It may conflict with the most advantageous use of another invention. It may have been intended as a "scarecrow" patent, essentially invalid or unworkable but frightening away other inventors from that particular field of invention.

At this point one should consider whether it is socially desirable to suppress patents in order to utilize old equipment more completely. It is argued that the immediate adoption of a new invention, such as the automatic telephone, however worthy, may mean maladjustment and unemployment of labor and waste of capital; and therefore that it is desirable to delay or graduate the introduction of invention. This contention undoubtedly has considerable merit. But it should be remembered that technical and industrial progress may be measured by the size of the scrap pile. The abandonment of the old necessitates considerable waste; the adoption of the new means progress. Each is a balancing factor to the other, and the one that predominates depends largely upon the circumstances of each particular case.

The suppression of United States patents by individuals and concerns of this country is particularly objectionable if they do not secure corresponding patents in other nations. It means that the people of the United States are forbidden to make the inventions patented here, while foreigners are free to develop them.

The arguments against suppression are accepted most readily when considered in connection with patents granted to foreign citizens. Our laws allow foreigners to take out patents in this country merely for the purpose of reserving the United States as a market for their patented products. The result in some instances is the discouragement of invention and the prevention of manufacture in this country, in spite of more favorable factors of production here than abroad. Any benefit here arises mainly from the importation of such inventions or the products which they make possible.

The effect of the nonworking of patents by foreigners upon the industrial development of the United States varies with respect to the nature of the patented invention and the availability of the patented product. If the invention represents only an improvement, it is quite possible for the manufacturers in this country to bring forth similar but different improvements or intensive inventions of equal or greater efficiency. If the invention is basic or pioneer and highly original, they are at a greater disadvantage. Moreover, this disadvantage may be extended to other industries by withholding from them the patented product upon which their development depends. Outstanding examples of this have been in the chemical and dye industries.

3. *Industrial Monopoly and Restraint of Trade.* A third evil of the patent system is industrial monopoly and restraint of trade. The original intention of the patent law was to give the inventor a temporary monopoly on his invention in return, of course, for his disclosure of it. Since then, however, the simple small-scale craft of the artizan has given way to the complex, large-scale machinery of the corporation. In important fields of manufacture there has been a shift from the inventor's ownership of one or a few patents to the corporate ownership of hundreds and even thousands of patents, a shift from the individual monopoly to a concentration of individual monopolies, and in some instances a shift from a seventeen-year monopoly of a specific invention to an indefinite monopoly of an industry.

Once a company achieves dominance in an industry through patents, it creates the very condition for its perpetual control. It often provides the principal or only market for the patents of the independent inventor. It becomes the principal or only place of employment of the professional inventor and laborer in the field. It operates or controls factories where inventions are reduced to practice and provides the laboratory and library and guidance along practical lines. In effect, it commands the main stream of inventive thought and perpetuates its power through patents. As basic patents expire improvement patents take their place; witness, for example, the continued control of the incandescent lamp through restrictive licensing under improvement patents.[2]

Further, such a company may extend its control to a stream of inventive thought by failing to disclose the entire invention or what is necessary to make the invention workable. The requirement that claims be clear and distinct was easily enforced years ago when inventions consisted of contrivances and simple processes. Today, however, many patents, especially in the field of chemical inventions, have indefinite and incomplete claims. According to law these claims would be held invalid by the courts if exposed by the facts. In practice, however, they are usually effective in warding off new and small competitors. Only those who can and will spend large sums can indulge in the expense and risk of proving insufficient disclosure; and rival companies large enough for mutual respect seldom sue each other for infringement. The result is that patents questionable as to validity help one or a few companies to maintain and continue control in the industry which they cover.

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[2] See *U.S.* vs. *General Electric Co.*, Brief for the U.S., Civil Action No. 1364, pp. 77-112.

As already indicated, patents have been used to accomplish what the Sherman Act forbids. This has been done through consolidations, pools, trusts, license agreements, community of interests, and unfair competition—the schemes commonly used by business in general in creating monopoly and restraining trade.

An industrial monopoly may be achieved by the outright ownership of all patents in a particular field. These patents may be obtained through consolidation of former competitors, from the corporation's professional inventors and employees, and by purchase from outside inventors. An obvious purpose in mergers is to bring together all kindred patents and thus achieve a total monopoly power in excess of the individual monopolies of all of them. In shoe machinery, mimeograph, camera and film, electrical, radio, chemical, and other industries, the control of patents has been an important factor in the dominance of one or a few companies.

The patent pool is an arrangement by which former competitors partake of the privileges conferred by one or more patents according to some prearranged basis. The number of business units in an industry that contribute patents to the pool may vary from one to all of them.[3] There have been patent pools in the seeded raisin, rubber tire, threshing machine, liquid door check, enameled ware, motion picture, coaster brake, petroleum, and other industries.

In some industries two or more concerns with patents may agree not to contest interference proceedings or to bring infringement suits against each other. This permits a mutual use and a united front against intruders. Conducive to such an understanding are intercorporate stockholding, common stockholders, and the interlocking of officers and directors.

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[3] One common scheme for effecting the patent pool was to assign the patents to a dummy who in turn exercised control through licenses to the contributors. This was analogous to the old trust in which stockholders of various companies would assign their stock to a board of trustees who in turn exercised control by voting such stock.

The owner of patents may license others to use his inventions if they comply with certain restrictions as to price, output, product, and territory. In numerous instances agreements of this sort are entered into with enterprises already in operation and in competition with each other.

The promoter of agreements that stipulate the prices, etc., of the licensee is seldom the individual inventor; instead it is a company whose main purpose is to project and bend and transform the rights of the individual patentee into a network of restraint upon trade. In effect, many patents, no longer just the monopoly rights of the individual inventor, become the basis of restraint of trade in an entire industry. The company acquires its patents from its own inventors and employees and from independent inventors. It may be engaged itself in manufacture and sale of the product which its patents cover; or it may be primarily or only in the business of amassing patents in an industry and then licensing others, perhaps former competitors. In either instance the licensees pay royalties, not merely for the right of making and using and selling the invention, but also for the privilege of restraining trade presumably without hindrance.[4] This patent-owning and leasing system exists in numerous industries and apparently is now the most effective scheme for restraining trade. Many patent licensing arrangements have been brought before the courts by the Department of Justice and in private litigation during the recent years.[5] A recent and outstanding example involves the Hartford Empire Company.[6] This company did not manufacture glass containers but rather obtained patents on inventions in this field and then licensed manufacturers of glass containers upon certain conditions.

The Supreme Court decisions have not followed a consistent pattern in defining the extent to which patents may be used to restrict competition. In general, they have upheld the ownership of patents in a particular industry—in other words, a monopoly of individual monopolies and therefore the dominance of an industry; however, recent decisions of lower courts may indicate a new trend.[7] Whether such patents have been used or suppressed appears irrelevant.[8] Some patent pools have been held legal and others illegal. Pooling or cross licensing of patents as between two or more former rivals, each permitting the other to use its patents, is within the law. Their licensing of former competitors, giving them the right to use their inventions upon payment of royalties, is legal. This was clearly indicated in the gasoline cracking case.[9] If former competitors pool their patents on the basis of restrictions as to prices, production, and markets, the legality of such an action is doubtful. If one or more patentees license former competitors on the basis of such restrictions, as in the glass container industry, the arrangement is unlawful. The Supreme Court in several decisions has condemned the extention of the patent grant to control unpatented articles to be used with the patented product.[10] In general recent decisions indicate a tendency to limit rather than extend the restrictions which may lawfully be imposed under a patent.[11]

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[4] See *U.S.* vs. *General Electric Co.*, Civil Action No. 1364, Brief for U.S., pp. 538-541.

[5] Cases dealing with the misuse of patents are collected in Bateman, "Should Antitrust Law Penalties or Unenforcibility of the Patent Monopoly Be Invoked for Misuse of the Patent Grant," *29 Journal of the Patent Office Society 16.*

[6] 323 U.S. 386 (1945).

[7] See, for example, *U.S.* vs. *Winslow*, 227 U.S. 202, also 247 U.S. 32. However, the acquisition of all of the patents on a particular product or in a particular field may be a violation of the Sherman Act in the same manner as the monopolization of a product or products. See *United States* vs. *Vehicular Parking, Ltd.*, 54 F. Supp. 828 (D. Del., 1944); *Lynch* vs. *Magnavox,* 54F. (2d) 83; *Stewart-Warner Corp.* vs. *Stanley,* 42 F. Supp. 140.

The issue generally is, of course, whether the patent owners are merely exercising their legal patent privileges or misusing the privilege to give color of legality to antitrust violations or obtain a limited monopoly of unpatented materials.

Every year foreign companies take out hundreds of patents in this country for the purpose of reserving it as a market. This practice may mean the exclusion of all would-be inventors and competitors in the United States from the industries covered by these patents and at the same time the building up of these industries in other countries, in spite of natural resources, labor, and capital favorable to their location here.

This practice is encouraged, also, by any reduction in our tariffs. Further, if the invention is not completely disclosed in the letters patent, which is often the case, the result is that this country has neither the manufacture nor the knowledge of the invention either before or after the patent expires.

The result is that any company, domestic or foreign, which has most or all the important patents and secrets in its field, especially if they pertain to a manufacturing process, may indefinitely extend its monopoly. The dominance of the chemical and dye industry in the United States by German companies was perpetuated by taking out

[8] The first decision of the Supreme Court definitely upholding the right of a patentee to suppress his patent is *Continental Paper Bag Co.* vs. *Eastern Paper Bag Co.,* 210 U.S. 405.

[9] *U.S.* vs. *Standard Oil Company (of Ind.)* 283 U.S. 163.

[10] Some of the cases holding that the patent monopoly of an invention cannot be used for the exploitation of an unpatented article are as follows: *Mercoid Corp.* vs. *Mid-Continent Investment Co.,* 320 U.S. 661; *Morton Salt Co.* vs. *Suppiger,* 314 U.S. 488 (1942); *Ethyl Gasoline Corp.* vs. *United States,* 309 U.S. 436 (1940); *Leitch Mfg. Co* vs. *Barber Co.,* 302 U.S. 458 (1938); *Carbide Corp.* vs. *American Patents Corp.,* 283 U.S. 27 (1931).

[11] See B. A. Diggins, *32 Georgetown Law Journal,* 113.

patents in this country, thereby reserving the United States as the exclusive market for their goods—a territorial monopoly, in effect, defined by national boundaries. It required two wars against Germany and the partial confiscation of German patents in both instances to weaken the strangle hold. Does a third experience like this lie in the future?

Patent Cartels

The control of the market in this country may be a mere phase of the operation of patent cartels. These international agreements restrict market territories, field of operation, customers, output, use of others' patents, price, purchases, and suits against validity of patents. These cartel agreements usually cover future as well as present patents and also provide for the exchange of confidential information essential to the practical working of the inventions—information which is not revealed by the patents. Such cartels are found in electronics, illumination, dyestuffs, explosives, pharmaceuticals, plastics and artificial textile fibers, synthetic rubber, petroleum refining, synthetic fertilizer, metallic alloys, and aircraft equipment.[12] According to the Alien Property Custodian, approximately one-half of the patent contracts entered into between citizens of enemy countries and the United States contain restrictive provisions concerning domestic production, market areas, and prices which may be illegal under the antitrust laws.[13]

During the recent war there was an exposure of agreements between companies here and in Germany concerning the manufacture and sale of such products as a synthetic rubber, tungsten, and tetracene—important in the manufacture of tires, machine tools, cartridges, and other war supplies.

The most important German patents, particularly in the chemical and photographic fields, escaped confiscation by the United States because the former German owners had assigned them to their partners and subsidiaries in this country. According to the Alien Property Custodian,[14] the Executive Committee on Economic Foreign Policy recommended the seizure and compulsory licensing of all captive patents transferred to enterprises here by I. G. Farben and others in enemy countries. Failure to adopt this policy would mean a lost opportunity to free these industries from monopolistic control. The only (rather questionable) achievement of our government would be a change in the legal residence of the beneficial owners of the company controlling the patents. Evidently the idea prevails in certain quarters that exploitation, like a huge national debt, is all right so long as it takes place among ourselves.

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[12] Robert P. Terrill, "Cartels and the International Exchange of Technology," *American Economic Review*, May, 1946, pp. 745-750. Also, see C. D. Edwards, Fritz Machlup *et al.*, *A Cartel Policy for the United Nations.*

[13] *Annual Report* (1945), p. 117.

[14] *Annual Report* (1945), pp. 110-117, and *ibid., Terminal Report* (1946), pp. 9-10.

Further, according to various reports, many important patents owned by Germans and other Europeans were transferred during the recent war to patent-holding companies in Switzerland. These property rights in patent monopolies may be used before their expiration to control the production and sale of important products throughout the world.[15]

Recent Studies

Before presenting possible remedies for these evils, one should mention the recent studies of our patent system by various governmental agencies—the Science Advisory Board Committee, Temporary National Economic Committee, National Patent Planning Commission, and Patent Survey Committee.

The Science Advisory Board Committee, sponsored by the Department of Commerce, made a report in 1935 in which it recommended certain changes in procedure in the Patent Office and the courts.

The Temporary National Economic Committee, established by Congress at the suggestion of President Roosevelt, and composed of six representatives from Congress, four from the Departments of Justice, Treasury, Labor, and Commerce, and two from commissions,[16] devoted a part of its inquiry to the patent system. Its recommendations in this field, as reported in 1941, consisted of two parts: one from the Department of Commerce and the other from the Antitrust Division of the Department of Justice. The recommendations of the Department of Commerce, made through the Commissioner of Patents, were somewhat similar to those of the Science Advisory Board. The Department of Justice through Assistant Attorney General Arnold recommended eight changes in the patent system, all approved by the TNEC. Some of the proposals, especially compulsory licensing and unrestricted licenses, strike at major evils and would bring about significant changes in our patent system.

In 1941, President Roosevelt appointed the National Patent Planning Commission to study our existing patent laws and procedure and to make recommendations. This commission, consisting of five members who represented science, industry, agriculture, labor, and the consumer, issued two reports in 1943 and 1944. Its proposals if adopted would bring about only minor changes in the patent law and procedure.

In 1945, President Truman in a letter to the Secretary of Commerce asked him to make a "full and objective study of the operation and effectiveness of the patent laws and their relation to the purposes of the antitrust laws and to the postwar economy, together with specific proposals for such legislation as may seem to be appropriate." In carrying out this request, Secretary Wallace appointed a Patent Survey Committee of four members; one of them served previously as chairman of the Science Advisory Board and another as chairman of the National Patent Planning Commission. It is expected that the new committee will make its report in the near future.[17]

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[15] W. V. Archawski, "Switzerland: Foster Mother of Cartels," *Harper's Magazine*, September, 1943, pp. 304-310.

[16] Securities and Exchange Commission and the Federal Trade Commission.

Possible Remedies

Next for consideration are these possible remedies for the evils of our patent system: fewer and better patents, greater remuneration for the inventor, limited use of compulsory licenses, prohibition of license restrictions as to price, output, or territory; and dedication of vital inventions to the public.

1. *Fewer and Better Patents.* In 89 per cent of all patent cases brought up to the courts of appeals and the Supreme Court during 1941-45, the patents involved were declared invalid.[18] This fact indicates that fewer and better patents should be the slogan for our Patent Office. Patents should be examined more thoroughly, and hence patent examiners greater in number and ability may be necessary. However, it should be admitted frankly that modern technology will continue to foster the very overlapping of inventions and therefore of patents which an ideal administration of the patent law seeks to prevent. Today inventions in each important industry represent an intermingled and interdependent mass of thought, and no one can tell exactly where one ends and the other begins.[19]

The Science Advisory, the TNEC, and National Planning groups agree upon the need of a single Court of Patent Appeals in order to improve the existing mechanism for the issue of patents and the determination of disputes. According to the TNEC, "such a court would replace the present eleven different and independent jurisdictions and should do much to assure uniform treatment of patents and to reduce the time and cost of patent litigation." Supplementing these measures should be the continued activity of the Department of Justice and the Federal Trade Commission in curbing threats of infringement suits and intentional infringement.

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[17] A convenient summary of the recommendations of the Science Advisory Board, the TNEC, and the Patent Planning Commission may be found in George E. Folk, *A Review of Proposals for Revision of the United States Patent System.*

[18] Daniel G. Cullen, "Patents in Litigation, 1941-45," *Journal of the Patent Office Society,* December, 1946, pp. 903-904.

[19] Recent expositions of this idea are found in Alfred E. Kahn, "Fundamental Deficiencies of the American Patent Law," *American Economic Review,* September, 1940, pp. 475-491; and Jim E. Reese, *The Economic Implications of the U.S. Patent System* (1940), Ch. 1 and 2, a doctoral thesis, University of Texas. According to S. C. Gilfillan, in his *Sociology of Invention,* inventors are rather incidental to the forces which cause their activities.

2. *Greater Remuneration for Inventors.* As already mentioned, the patentee generally has difficulty in obtaining a fair price for his patented invention because he frequently must sell in a market under the control of the buyer. The owner of an improvement patent is largely dependent upon the owner of a basic patent for a market. And even without the use of patents the industry exploiting an invention may be monopolized by one or a few companies. These handicaps of the patentee in marketing his invention may be partly removed by arranging for licenses which permit the conjoint use of improvement and basic inventions.

The National Patent Planning Commission recommends the "establishment in the Patent Office of a public register upon which would be placed those patents under which the owner would be willing to grant licenses on stated or reasonable terms. When an interested party and the owner are unable to agree as to the unstated terms for a license under a patent entered on the register, the Commissioner of Patents shall fix the terms after an opportunity for hearing with right of appeal to the Court of Customs and Patent Appeals."

A recent gesture in this direction is the publication by the Patent Office of a *Register of Patents Available for Licensing or Sale.* According to the Patent Office, "with but 2 to 5 per cent of the methods, products, and devices for which patent applications are filed seeing the light of day in articles for commercial use, the Secretary of Commerce felt that some procedure to bring more inventions out in the open would be advisable." In addition, some two hundred trade journals are advised when patents in their respective fields appear on the register. However, the Patent Office does not assist the patent owner in negotiations with a prospective licensee concerning terms, contract, etc. In other words, its responsibility ceases with the establishment and maintenance of the register. There is no charge to the patent owner. The Radio Corporation of America has placed all its patents on the register for license. The International Harvester Company has placed the major portion of its 1,200 patents on this register; and Farnsworth·Television has adopted a similar policy.

Another way to provide for the conjoint use of improvement and basic inventions and therefore for a wider market for each invention worth while is through compulsory licenses, a proposal which receives greater consideration at a later point.

Any payment to the inventor, instead of being all at once, should be distributed over the life of the patent and thus help the inventor to continue his creative work. Edison was well aware of the advantage of the royalty basis of compensation. He stated in 1919 that "if there is any possible way whereby the law would in actual practice work out so that the inventor would be protected from the capitalist, either by the impossibility of alienating all his interest, or in that a fixed per cent should always be his, in spite of himself, it would be of great value to the people of the United States."[20]

Specific measures that seek to encourage the inventor through a greater likelihood of reward—measures that would reduce litigation, provide a better market for his patent, and foster the payment of royalties—are belittled in certain quarters on the ground that they would benefit only the independent inventor. It is true that he has become less important, but the main reason for this is the increasing difficulties which have confronted him. However, there is reason to believe that in the future as in the past, he will conceive most of the basic pioneer inventions if given an opportunity. The independent inventor usually is not restricted through training and business guidance about what is practical or profitable. The Goodyears and Edisons and Fords, at the beginning of their careers, would not have been accepted by the research laboratories of corporations or universities.

Further, the fact that captive inventors are on the pay rolls of wealthy corporations does not mean that they have nothing to gain from measures for decreasing litigation, improving the license market for patents, and establishing the royalty basis of compensation. On the contrary, such measures would encourage additional enterprises in each industry and therefore the number of possible bidders for their services and would also increase the attractiveness of the alternative of being an independent inventor.

3. *Compulsory Licenses upon Certain Conditions.* Compulsory licenses should be provided by the government to permit the conjoint use of important improvements and basic inventions, to prevent the suppression of worth-while patents, to restore competition and at the same time lessen the conflict in the use of the latest technology.

As already suggested, compulsory licenses would permit the conjoint use of improvement and basic inventions and thus would widen the market for each invention worth while. If necessary the government would specify the amount of the royalty, a difficult task of course in most instances. This amount, though necessarily an approximation, would be closer to a fair value than an arbitrary price set by a single or a few buyers. It should be added that the mere requirement of such licenses by the government would encourage the owners of improvement and basic patents to get together upon reasonable terms.

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[20] Nolan Hearings of 1919, pp. 172-173.

The obvious means of preventing the suppression of worth-while patents is to license others to use them on a royalty basis. It would permit a patentee to use his improvement in conjunction with a basic invention or another improvement. Likewise, it would permit him to use his basic invention with the improvements by which it is fenced in. Requiring patentees to license others is especially significant in the case of patents taken out in this country by foreigners, not for the purpose of working them, but rather for reserving the United States as a market.

The dominance of several industries by one or a few companies is based upon patents. Is this concentration of control inevitable? Is it desirable? Similar questions have arisen in the field of labor. The national government, through laws, presumably in promotion of the public welfare, built up the power of labor until it matched that of their employers in certain fields. Recent labor laws curb the power of unions. Should legislation be enacted to check the dominant corporations in certain industries? Shall we open up the closed industry? Do we want to encourage inventions and the use of them and at the same time competition and small businesses?

Compulsory licensing would be an effective means for dealing with industrial monopoly and restraint of trade, and for preventing conflict in the use of the latest technology.

Indicative of monopoly would be the ownership of practically all important patents in an industry by one or a few companies. In that event the owner or owners would be required to offer licenses to others upon a royalty basis and the reasonableness of its terms would be measured largely by the number who become licensees and competitors.

To encourage competition and the use of the latest technology it would be necessary in some instances to pool the useful patents of the entire industry and to license any prospective manufacturer to use the technology which they cover upon payment of royalties according to his volume of output. These royalties in turn would be paid to each patent owner as dividends from the pool's treasury in proportion to the importance of its input of patents.[21]

Further, several owners of patents in any industry—for example, in refining petroleum—would be given the opportunity to pool their patents, issue licenses to others, collect royalties, and divide the proceeds among themselves, provided, of course, their plan encouraged competition and otherwise met the approval of the government.

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[21] Compelling the patentee to grant licenses on reasonable terms in order to restore competition has already been put into practice by the federal courts in several decisions. Examples are: *Hartford Empire Co.* vs. *U.S.* (1945) 323 U.S. 386; *U.S.* vs. *Vehicular Parking Ltd.*, 65 F. supp. 297 and 61 F. Supp. 656; and *U.S.* vs. *National Lead Co.*, 63 F. Supp. 513, affirmed June 23, 1947; and *U.S.* vs. *Aluminum Co. of America*, consent decree, 1942, Civil Action No. 18-31, U.S. D.C., S.D. N.Y. The Department of Justice has asked for compulsory licenses in other cases now pending. However, such licensing of misused patents is an inadequate antitrust relief; a more effective policy would be their cancellation. See *U.S.* vs. *National Lead Co.*, Brief for U.S., pp. 54-78.

It would be difficult to appraise the relative merit or importance of kindred patents in the same industry owned by various individuals and companies; and yet this would be necessary in determining the royalties for each owner. Further, appraisals of patents would be modified as some patents expire and as others are issued. Also, a manufacturer in another industry might want a license under one or a few of these patents rather than all of them. Again, improvement patents would be differentiated and the royalty determined for each separately so that any licensee could take any one or all of them.

In order to facilitate the proper administration of compulsory licenses and to improve the patent system in other ways, Congress should authorize the Department of Justice or an appropriate commission to take action to test the validity of patents. Such power should be exercised first in those industries where most patents are controlled by one or a few companies.

Compulsory licenses should not provide any immunity or exemption from the antitrust laws of the United States. If properly administered, they would lessen the need for such laws in industries where patents are a major factor.

Under this policy, the relative importance of the patents of large corporations would decrease to the extent that a more certain reward would stimulate independent inventors. Another factor in this situation would be the extent to which educational institutions pursue programs of research, not merely in pure science, but in its practical applications. Some universities now lead the way in finding new resources, new processes, new products—in short, new means for industrial expansion.

The policy would provide royalties on many worth-while patents of independent inventors and of enterprises both small and large. Certainty of reward would arouse and sustain inventive activity more than the present uncertainty. Payment of royalty rather than litigation and other uncertainties would be the price of admission to certain industries, and therefore would permit more effective and more extensive use of inventions. It would create, restore, and increase competition in many lines of manufacture. It would open up new fields of economic activity to hundreds of enterprises. In other words, this policy would stimulate inventions and the use of them, foster competition, and provide economic opportunity.

The TNEC makes a broad recommendation in behalf of compulsory licenses, while the Patent Planning Commission approves such licenses only on grounds of national defense, public health, and public safety.

4. *Prohibition of License Restrictions on Competition.* Another essential measure for curbing industrial monopoly and restraint of trade is to forbid the granting of licenses with restrictions that lessen competition. At first the patentee usually did exactly what the law intended—he either exercised the exclusive rights to make, use, and sell, or he sold his patent to another. However, as the patent-owning corporation displaced the patent-owning individual, it sought to extend the exclusive rights which the patent confers.

Witness the dictation of supplies for the mimeograph and other patented inventions. The courts first upheld the practice in 1912.[22] The Clayton Act of 1914 declared it unlawful and the Supreme Court reversed its position in 1917 in the projecting machine case.[23] Further, the patent-owning manufacturer dictated the resale price of his products, a practice upheld by the lower courts for many years and then condemned later by the Supreme Court in 1913,[24] and the Clayton Act of 1914.

Patent lawyers and others argued that the dictation of supplementary supplies and of resale prices was essential to the exclusive right to use and sell; yet these practices, until outlawed, unduly extended the area of patent monopoly.

In the light of this experience one should briefly appraise the present practice of patent-holding companies in licensing others with various restrictions upon production, use, and sale. Examples of this practice have come to light, especially in recent years, through action of the Department of Justice and decisions of the courts. There is legal uncertainty as to how far the exclusive rights of the patent owner can be extended and stay within the law. To reduce such confusion and to foster competition, the Clayton Act should be amended to forbid any restriction as to price, output, or territory. The TNEC recommends unrestricted licenses.

Both the TNEC and the Patent Planning Commission recommend that a patent shall expire not more than twenty years from the date of filing the application, thus obviating the possibility of prolonging the patent monopoly by keeping an application pending in the Patent Office a long time. Further, they approve the recording with the government of all transfers and agreements involving patents. Both of these recommendations are commendable.

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[22] *Henry* vs. *A. B. Dick Co.,* 224 U.S. 1.

[23] 243 U.S. 502.

[24] *Bauer* vs. *O'Donnell,* 229 U.S. 1.

5. *Dedication of Vital Inventions to Public.* As further means of reducing the area of monopoly, foods and medicines should be freed from patent control. The patent laws of several important countries exclude either one or both of these classes of products. It is recommended that patents on these and other products vitally related to public welfare be purchased by our government and dedicated to the public.

A movement in this direction consists of research financed by the individual states and the federal government. This research leads to inventions which may become available to the public in various ways. If the invention is patented, it may be offered to all on a royalty basis. If it is not, it may become quickly and completely available to all; or it may be withheld as a secret until the proper time to use it in national defense or otherwise. As public research goes forward in practical as well as theoretical fields, a larger area of manufacture and sale will be freed from restrictions and thus become open to all as most learning and practice have always been.

In other fields of endeavor where originative genius is important, there are no legal monopoly rights because of either ethical or practical considerations. Discoveries by doctors are usually revealed without compensation. Important ideas in assembling and warehousing and distributing products—in timing and co-ordinating—cannot be patented or retained as secrets. Likewise, advances in pure sciences bring no monopoly rewards to pioneers in these fields. The ideal is by other or any means to stimulate learning on all fronts and to bring the benefits to the public as quickly and completely as possible.

Effect of Compulsory Licenses and Other Proposals on Research and Secrecy of Inventions

Today most industrial research is carried on in the laboratories of business corporations, and its importance, especially in reducing inventions to a practical and profitable basis, is generally accepted. Would compulsory licensing and the other proposed changes in our patent system discourage such research? These remedial measures apparently would have little or no effect in those industries where economic efficiency rather than monopoly is dominant.

It seems reasonable to assume that companies would vie with each other as now in finding new products and improving old ones. Each one as now would still seek to be the first to offer something new or better to the trade, and would still strive for the know-how that arises from research. According to the testimony of business executives, some companies would continue their research even if patents were abolished just as they now engage in research in markets, labor relations, etc., to maintain their leadership.[25] In addition, each one would have the incentive to continue its industrial research in order to receive royalties from each other and from new competitors. Corporations now dominant in their fields would be compelled to accept these same advantages in place of monopoly as their primary incentive.

Would these reforms encourage enterprises to resort to secrecy rather than patents for their inventions? Today complete secrecy and partial disclosure in patents are employed to the extent that the nature of the invention permits; and there is no reason to expect that compulsory licenses would affect this practice.

Patent Policies of Other Countries

Every great nation except the United States has taken measures to prevent the exploitation of its patent system, especially by foreigners. In Germany, according to the Act of 1911, if a patentee refuses to grant a license to another upon a reasonable basis, he may be compelled to do so by adjudication on the ground of public interest.[26] Compulsory licenses are not required in the case of fancy articles, such as finery, jewelry, and toys. According to German decisions from 1918 to 1935, they are granted on these grounds: public safety and health; reduction of cost of vital goods; improved provision of the domestic market; prevention of shutdowns of plants; improvement of the balance of trade through promotion of the export business; and, most numerous of all, the use of important improvement or "independent" inventions in conjunction with a basic invention. In the last mentioned case, the spirit of the administration, as expressed by the German Supreme Court in 1916, is: "Intolerable is the situation that two patentees should be permitted to prevent each other and the public from using a valuable invention." To repeat, compulsory licenses in Germany have been granted since 1911 on the ground of public welfare. An appreciable number of compulsory licenses have been granted in that country particularly to permit the use of important improvements with patented inventions.[27]

According to the English law, compulsory licenses may be granted if the monopoly rights of the patent have been abused through nonuse of invention, failure to satisfy domestic demand, refusal to grant licenses, and restraint of trade; but very few licenses have been issued under this law. The opponents of compulsory licenses emphasize this fact and argue that such a law, therefore, is not needed.

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[25] *Pooling of Patents,* Hearings before the committee on Patents, House of Rep., Part I. p. 285. Also, *Investigation of the Concentration of Economic Power,* Part II, pp. 263, 332, 335, 351-352; and Part III, p. 974.

[26] Further, patents worked in foreign countries but not in Germany are revoked; since 1911, however, there has been only one application for revocation of a patent for this reason.

[27] Richard Reik, "Compulsory Licensing of Patents," *American Economic Review,* December, 1946, pp. 818-820.

In any event the success of compulsory license legislation cannot be measured by the mere number to whom licenses are granted. According to a report in 1946 of the Departmental Committee of the Board of Trade, many witnesses declared that the existence of such a law in England has a "salutary effect in inducing patentees to adopt a reasonable attitude in dealing with requests for voluntary licenses."[28] Incidentally, the mere threat of such legislation in this country may have something to do with the recent willingness of some companies to license others under their patents.

According to the same report, very few licenses have been granted in England because of limitations in the law and its administration. The interpretations of the court "have narrowed the apparent scope" of the law; for example, the expression, "the public interest," is so construed that "where there is a conflict between the interests of the patentee and the interests of the purchasing public, the comptroller is not directed to prefer the wider interests of the public to those of the patentee. . . . Moreover, the uncertainty of its application, the high costs of proceedings under it which are taken to appeal, and the heavy onus of proof cast upon the applicant who in the ordinary course is not in so advantageous a position as the patentee to furnish proof of the relevant facts, have combined to discourage resort to this section. Relatively few applications have been made under it, while the abuses which it is intended to curb still occur." The conclusion of the committee is: "In our opinion, this section as it now stands, and as now applied, does not provide a sufficient remedy against the restrictive use of patents."[29] According to Mr. I. M. MacKeigan, of Ottawa, the shortcomings of the Canadian Patent Act, like those of the English law, are the restricted scope of the law, limited remedies, restrictive interpretation by the courts, expense and delay, and "the difficulty facing a private individual in finding out whether a patent has been abused."[30]

As already indicated, the enforcement of the English and Canadian laws depends primarily upon the initiative of the individual. He is usually the applicant for a license on the ground of violation of the law; the burden of proof is upon him, and a decision in his behalf is in effect a penalty to the patent owner.[31] In other words, enforcement springs mainly from individual self-interest and private legal action rather than public welfare and government administration. Experience shows that regulatory laws cannot be successfully enforced on such a basis. Until 1887 prevention of extortionate and discriminatory freight rates depended solely upon action in the courts by the shipper; and until 1914 the prevention of unfair competition depended upon similar action by the injured competitor and in both instances the result was little relief to the small concern. Since then the Interstate Commerce Commission and the Federal Trade Commission have in large measure remedied the situation. Similar illustrations could be added. Likewise in the enforcement of compulsory licenses and kindred provisions for curbing the abuses of our patent system, administration by a commission in behalf of public welfare would be necessary. Private lawsuit would be inadequate as it has been in England and Canada.

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[28] *Second Interim Report* (London, 1946), p. 7, par. 27.

[29] *Ibid.*, p. 9, par. 29, 30, and 31.

[30] I. M. MacKeigan, "Notes on 'Patents in Relation to Monopoly,'" *Canadian Journal of Economics and Political Science*, November, 1946, p. 475.

[31] An elaboration of this point of view is found in Richard Reik, *ibid.*, pp. 824-826.

In other nations the courts give little protection to patents owned by foreigners. Russia and China do not confer patents to foreigners upon any condition. In this connection it should be noted that the German patents seized by the United States have been printed, and copies are available to all at twenty-five cents a copy; and that Russia has been a principal buyer. However, no inventions in that country have been made available to other nations since 1927.

Conclusion

Invention is a response to the general environment. Patent laws and their administration—validity, litigation, etc.—constitute a part of this environment and they may stimulate or depress the inventive mind. Which they do depends partly on whether they enable the inventor to receive remuneration for his ideas so that he can continue to invent.

How may the inventor receive any reward? How may the patent system encourage invention? In general, there are two possible answers or plans. One emphasizes the patent monopoly and its transfer from various inventors to a corporation whose position in the industry permits it to have laboratories and employ inventors so as to maintain and extend its dominance. The inventors and workers receive salaries and wages and assign their patents to the corporation and independent inventors depend on it as a market for their patents.

According to this plan, the complete exemption of patent-owning companies from the Sherman and Clayton Acts would increase the importance of patents and therefore the incentive to invention. From this standpoint the adverse decisions of the Supreme Court in the Ethyl gasoline, glass container, and other cases were a blow to our patent system and to invention. In fact, prior to the rendering of these decisions many had argued that the very practices condemned by the Court were the very privileges which patents confer for the sake of invention and public welfare.

The other plan emphasizes the reward to the inventor, not merely by granting him a patent, but by providing a competitive market for the sale of his patent rights, preferably on a royalty basis. Secondary aims to his reward and the stimulation of invention are competition in making better products at lower cost and selling them at lower prices, and economic opportunity for individuals and small enterprises. This ideal, like any other, cannot be completely realized, but it is the one in keeping with the economic way of life which many of us cherish in spite of the extent to which it exists in the past rather than the present.

OUR NATIONAL PATENT POLICY

By WILLIAM H. DAVIS
President's Committee on Patent Policy

Our highly developed private enterprise economy demands, or so the economists tell us, a constant flow of technological innovation. To stimulate that flow we have chosen to rely principally upon patents for inventions—the grant of temporary private monopolies for substantial technological innovations. Our patents for inventions are federal grants to the first inventor for seventeen years of the exclusive right to make, use, and sell the patented invention. They are based on the constitutional provision that to promote the progress of science and useful arts Congress may secure to inventors for a limited time the exclusive rights to their discoveries.

The temporary right to exclude others from the use of an invention is an incentive essentially material in its nature, addressed to the cupidity of men. It brings to bear upon the individual all the impulsions that can arise from economic necessity. It has been said of this incentive (1) that it encourages invention and research; (2) that it induces an inventor to disclose his invention or discovery, instead of keeping it a trade secret; (3) that it offers inducement to risk capital for development through the trial stage that precedes marketing; and (4) that it attracts capital into new production which might not appear to be profitable if competing producers were free to follow the leader. Let us look at these incentives one at a time.

1. As to encouraging invention and research, is it not the pressure of economic necessity on the inventor or producer that is the truly effective impulse to technological innovation; is not that the necessity which is proverbially the mother of invention? Invention is surely an expression of the deep creative impulse of mankind, an impulse that hardly needs another spur. So far as organized research is concerned, that would remain indispensable to modern competitive industry if the patent system were abolished.

2. But the inventor, like the rest of us, has to live and so we need to make it possible for inventors to earn a livelihood; we must make it at least as profitable to supply the continuing demand for inventions as it is to supply ordinary articles of commerce. The inventor with his new idea in mind must be able to find a market. His difficulty is that as Mr. Jefferson was wont to remark, a new idea is something "which an individual may exclusively possess as long as he keeps it to himself; but the moment it is divulged it forces itself into the possession of everyone." Consequently, if an inventor has no other choice, no artificial pro-

tection, he will certainly use all his ingenuity to keep his invention secret, or as nearly so as may be. Thus the choice is always between full disclosure in exchange for the temporary monopoly the patent system offers him, or secret practice to the extent and with all the safeguards that his ingenuity can devise. All my experience strengthens in me the conviction that this inducement to choice of disclosure in preference to secret practice or carefully guarded know-how is the central point at which the incentive needs to have its maximum effect. Nor is the margin of choice at this point as deep as a well or as wide as a barn door. The advantage or disadvantage of swapping disclosure for the temporary monopoly may be a very close question in many cases, even under a system of temporary monopoly grants considerably more efficient than ours is today. An inefficient patent system, or one that begrudges the temporary monopoly, may very easily defeat its own basic purpose of full and free disclosure.

3. and 4. The effect of temporary private monopolies to induce the venturing of risk capital in the initial development stage and in the stage of commercial production is contingent upon a free enterprise system based on voluntary investment of private capital in a competitive economy. In such a system these inducements may be important, but only in such a system. The significance of this has been emphasized very much, to my mind at least, by our recent doings in the field of atomic energy. In this field the government has been driven to reserve to itself a total monopoly of the production of fissionable material and atomic weapons. The inducements to risk capital have, therefore, no significance, and so we have done away with the grant of patent monopolies in these fields. Disclosure has been made mandatory by law; a compensation is by government award.

Since no patents are to be granted for producing fissionable material or atomic weapons, any innovations which security requirements allow the Atomic Energy Commission to publish will become immediately available to everyone. We will have, in effect, for those published innovations a general licensing system without payment of royalty. Indeed, the Attorney General has recommended that as a basic policy *all* government-owned inventions should be made fully and unconditionally available to the public without charge, by public dedication or by royalty-free nonexclusive licensing.

The fact that we have, almost inevitably, been led to a system of government awards in the excluded fields of atomic energy and toward a policy of public dedication of all patentable inventions owned by the government discloses at once the potentialities and the limitations of any such system of general compulsory licensing as that recommended by the TNEC seven or eight years ago. That proposed substitution of compensations fixed by an administrative or judicial agency of government for temporary monopoly is appropriate enough wherever the government is prepared to supply the risk capital necessary for the development of a particular art or has acquired inventions as a result of research or development already paid for. As an over-all policy it is consistent with an economy of government ownership, but it is inconsistent with an economy of private enterprise.

Without attempting here to follow the significance of this fact into the many fields of application of compulsory licensing which have been suggested, I confine myself to pointing out that the idea of a royalty fixed by the government necessarily entails some sort of obligation to enforce the exclusive right against those who do not voluntarily pay royalty; that standards of reasonable royalty are practically unavailable to a government agency; and that such a system would be devoid of that separation of the wheat from the chaff among patented inventions that characterizes the realistic operation of private grants of temporary monopolies. I may add, however, that my rather extensive experience during World War II in the administration of governmental controls in areas where there were no commonly accepted standards of measurement and no established methods of enforcement leaves me with a deep conviction that the practical administration of any system of general compulsory licensing lies utterly beyond the limitations of democratic government.

However that may be, it seems quite clear that in the critical economic adventure that lies immediately ahead of us we are committed to our present kind of patent system which aims as a general policy to secure to inventors for limited times the right to exclude others from the use of their inventions or discoveries. That does not mean, in my understanding of it, that compulsory licensing need be wholly eliminated. We already have it in more than one area of the patent system. Since 1910 there has been compulsory licensing for use by or for the government, by act of Congress. And compulsory licensing is recognized by the Supreme Court as an appropriate means to correct a monopolistic situation built up in violation of the antitrust laws. Furthermore, the federal courts have always had and have often exercised the discretion to withhold injunction, after adjudging validity and infringement, where public health or safety is involved or where very special circumstances make injunction an excessive hardship for the defendant without substantial benefit to the plaintiff. Nor have we yet heard the last word on the subject of compulsory licensing as a remedy for unjustified nonuse. Since one great object of the patent privilege is to bring inventions into actual use and put their benefits within the reach of others, it would seem not unreasonable to declare by act of

Congress that prolonged and unjustified failure to use or license is an abuse of the patent right, and to make such abuse a defense to a suit for injunction and a ground for declaratory judgment proceedings in the federal courts.

If, as I suspect, we are committed to the granting of temporary monopolies for the promotion of technological innovation for the immediate future, the important thing seems to be to make the best of this resource, as we must now make the best of all our productive resources. Obviously this choice of incentives entails a cost, since private monopoly is in general inconsistent with free enterprise. But any scheme of promotion entails some risk and faint heart ne'er won fair lady. But courage is a virtue only when directed by prudence, so the real question is whether the particular scheme is worth its cost. This question has given rise to much discussion of the virtues and the vices of our patent system. That discussion has yielded, I think, very little fruit. It is a very ancient saying that criticism comes easier than craftsmanship, and that is peculiarly true of our patent system at the present moment.

One reason is that we have no basis for factual comparison with any alternative. While the grant of temporary private monopolies has been adopted in every industrialized country in the world, no alternative incentive has ever been tried anywhere except recently in Russia. We do not know anything about the results in Russia and if we did, that knowledge would be without much significance for an economy of private enterprise. Another reason is that our patent system falls so far short in these days of effective administration that it is practically impossible to assess what might be, in a modern industrial economy, the true virtues and the true vices of an effectively administered system. In the absence of any alternative experience, it is extremely difficult to get any factual knowledge on which to base such an assessment anyway, and the present administration of our system is so encumbered with delays and frustrations that its every virtuous aspect and every vicious aspect are entangled in and distorted by these inefficiencies—so much so that I think we waste time in theoretical discussion of virtues and vices under present conditions. The most we can do, I believe, is to try to define standards for an effective patent system and then devote our energies to bringing our system up to those standards, as nearly as may be. And this ought to be done now, when we need all our resources. What I am about to say about such standards and the possibility of approximating them in practice is a somewhat condensed repetition of thoughts expressed more at length than I have time for here as part of a symposium on patent laws published in the current issue of *Law and Contemporary Problems* at Duke University.

The grant of temporary private monopolies as an inducement to substantial technological innovations, which is the essence of our patent system, implies a contract in which the price paid by the inventor is the disclosure of his invention and the price paid by the government is the assurance that for seventeen years no one will be permitted to make use of the invention without the patentee's consent. This calls for a full and frank disclosure from the patentee and for good faith and diligence from the government. That patents shall be granted only for substantial innovations which the inventor has in fact originated and fully disclosed and that the protection by government of the patentee's exclusive right shall be prompt, sure, and reasonably inexpensive, are thus requirements inherent in the very nature of the system.

The effectiveness of any incentive depends upon its appeal to the individual to whom the incentive is offered. The nature of the incentive needs to be such as to arouse in him some eagerness to accept it in preference to other alternatives. In the case of inventors this means in preference to the alternative of keeping his innovation secret, or as secret as he can. To my mind, the growing emphasis on undisclosed know-how and the broadly expanded resort to complex patent licensing agreements both reflect, in the realistic world of American industry, dissatisfaction with the delays and frustrations of our patent system as now administered.

That within the century there have been significant changes in the character of our industrial society and particularly in the relation of the individual inventor to the progress of applied science and useful arts is clear. It is a commonplace remark that we have passed from a stable society to an adaptive one, and nowhere is this more apparent than in the accelerated flow of technological innovations. This increase in the tempo of technological improvement and its effect upon the environment of the patent system has correspondingly increased the importance of clear definition, simple and prompt procedure, and surety of enforcement. But, unfortunately, in this period we have suffered retrogression rather than progress. It would be easy to be pessimistic about this, but I do not think we can afford to be. On the contrary, I think we now need to treat this situation as one offering an opportunity for correction that could, at this critical moment in our industrial life, quite significantly promote the progress of science and useful arts.

The primary functions of the Patent Office are to afford a publicly-accessible general repository of industrial technology, and to act promptly in granting patents for real inventions and in refusing patents for anything less. It must be admitted that the Patent Office is markedly deficient in performing these functions.

That there should be available in the Patent Office a greatly improved repository of industrial technology will be very clear to anyone who takes the trouble to study the Patent Office classification system and the equipment of the Patent Office library. Every Commissioner of Patents for years has been aware of these deficiencies but has never yet had adequate appropriations to correct them. The time has now come, I believe, when decisive action in this direction must be undertaken. Although the problem lies within the Patent Office, it is closely related to a more general problem of creating a publicly-accessible repository of the whole body of scientific knowledge. This relation has been recognized. In all recent legislation dealing with governmental research and development there has been evident a Congressional desire to make scientific and technological knowledge readily available to the public. It is a large problem. It warrants, I believe, immediate and careful consideration by a well-chosen group of experts, either under the auspices of the executive branch of government, or under the joint auspices of the Executive and the Congress.

As to prompt issuance of patents by the Patent Office, the situation, which has long been deteriorating, has now become one of critical emergency. The backlog of the Patent Office in the summer of 1946 was two and a half times as great as in 1942 when it was already much too great. There were over 100,000 applications and amendments awaiting action by the examiners. The average delay in Patent Office actions was more than a year, and the average time for passing an application through the Office was six years. This cannot be permitted to continue very much longer without a breakdown. It calls for emergency action including increased appropriations. Its permanent correction requires more than emergency action. Basic reforms in Patent Office equipment and procedure are needed. Abandonment of the idea that the Patent Office must be self-sustaining is called for. Better tools for the Patent Office examiners are an inescapable necessity.

One significant legislative proposal that has met with pretty general approval is the so-called "twenty-year" law that no patent shall in any event have a term longer than seventeen years and all patents shall expire at a date not more than twenty years from the date when the application was filed, with limited discretion in the Commissioner of Patents to make allowance of not more than two years from the filing date for unavoidable delays not chargeable to the applicant. The enactment of this bill could be expected to put pressure on the applicant and the Patent Office, and even on the appropriation committees of the Congress, to speed up the issuance of patents.

A more direct attack, aimed at a reduction of the over-all load on the Patent Office, has been proposed. It is well known that a great many patent applications are filed, particularly by industrial corporations but not only by them, in cases where the owner of the innovation does not really want or expect to exercise a monopoly. These are the so-called "defensive" patent applications. Unfortunately, the applicant does not get that defensive protection unless the patent issues. The result is that industry and the Patent Office are burdened with prosecution of these applications to final allowance, even though no one expects that the issued patent will, or intends that it shall, become the basis of a monopoly. It has been proposed that this burden be lifted from the Patent Office and from industry by authorizing the applicant to abandon the application after a first action by the Patent Office and after complying with requirements of the Commissioner as to form, and that an application so abandoned be published with the same evidentiary effect now attributed to the filing of a patent application which eventuates in an issued patent. The proposal is worth very careful consideration. It may be a feasible way to reduce very substantially the load on the Patent Office.

It is an anomaly in our patent system that appeals from the decision of the Board of Appeals of the Patent Office may follow either one of two courses, as the dissatisfied applicant may choose. He may either appeal to the Court of Customs and Patent Appeals, on the record made in the Patent Office, or bring a bill in equity in a federal district court. It has been suggested that the appeal to the Court of Customs and Patent Appeals, an administrative procedure, should be eliminated. Statistical studies and informed opinion indicate that such change could be expected to result in a significant reduction in the number of appeals. It would also contribute to that degree of clarity and uniformity in the actions of the Patent Office examiners and the Patent Office Board of Appeals which must be achieved to break the intolerable bottleneck that the Board of Appeals now is.

In the field of judicial interpretation and administration of the patent laws, considerable thought has been given to the delays, uncertainties, and costliness of patent litigation and to the very considerable gap that seems to exist between the Patent Office and the courts as to what is patentable subject matter. The principal suggestion now current in this field is the creation of a single court of patent appeals to take over, subject to review by the Supreme Court on certiorari, the final jurisdiction in patent litigation that is now divided among the ten Circuit Courts of Appeals and the Court of Appeals of the District of Columbia.

This suggestion has been under discussion for many years. There are two schools of thought. One regards the suggestion as a wise and necessary thing to eliminate conflicts, uncertainties, and multiplication of litigation on particular patents that now prevail. The other fears that separation of the judicial process in patent cases from the general body of our federal system would tend to isolate the court from those contacts with human and commercial problems which keep the judicial vision broad, and would lead to technical and narrow attitudes and judgments destructive of what should be a living and dynamic system.

Among many suggestions as to how these two points of view might be reconciled, perhaps the most carefully considered one is that the proposed single court of patent appeals should have not more than two permanent judges, one of whom would be chief judge, and that the other judges should be designated from time to time, for temporary service, by the Chief Justice of the United States from the federal judiciary, the temporary judges being in the majority in every case. In this way it is hoped to secure the uniformity, finality, and reduction of litigation sought for, and at the same time to retain the beneficent effects of the broader judicial experience to which the whole body of federal judges is continuously exposed.

There is another proposal that suggests a somewhat different approach to many of the problems that grow out of our multiple courts of appeal. That suggestion is that the final judgment of a federal court holding a patent or claim thereof invalid should have the effect to revoke the patent, subject to the right of its owner to have it reissued after due examination in the Patent Office. This suggestion implies a sort of continuing responsibility of the Patent Office, called into being, however, only by a final judgment of a federal court. It seems worthy of careful consideration, which should include, of course, its possible effect upon the already highly developed law of reissues.

A great deal has been said and written about the question whether, and to what extent, and how and why, the monopoly granted under patents for inventions is in conflict with the antitrust laws. My belief is that there is no necessary conflict between these two long-established concepts of American life; that, on the contrary, if properly administered, they complement and support one another. Yet it cannot be denied that patents have been made use of in the building up of combinations and conspiracies in restraint of trade which have violated the antitrust laws, and that the patent privilege has sometimes been projected beyond its legitimate scope to interfere with the free flow of commerce in unpatented articles and materials.

There can hardly be any doubt that such abuse or misuse of patent rights is increased by the current obesity of our system of issuing patents and of interpreting and enforcing patent rights. The inducement and the opportunity for such abuse might be quite different if we had a patent system in which patents were promptly issued only for patentable inventions and could be adjudicated and enforced quickly and at minimum expense. Suppose, for instance, that the average patent application could be processed by the Patent Office in six months from filing, that a suit for infringement could be brought to decision in a District Court within six months from filing the complaint, and that another six months would cover any appeal. The picture would certainly change its whole aspect.

In the meantime, we can and we should segregate in our thinking abuses which may arise out of defects in our system of issuing and enforcing patents or out of defects in the patent grant itself from those abuses which result from license agreements, contracts, and combinations entered into by patent owners.

It is as true of owners of patents as it is true of the owners of other property that they are forbidden by the antitrust laws to enter into any contract, combination, or conspiracy in restraint of trade, or to monopolize or attempt to monopolize any part of trade or commerce beyond that limited monopoly secured to them by existing patents. Within this area of combination encroaching upon the territory forbidden by the antitrust laws, the patent laws afford no protection. Such conduct can be prevented by enforcement of the antitrust laws, and calls for no change either in the antitrust laws or in the patent law.

Even though it may thus be assumed that the antitrust laws afford adequate safeguards against bilateral contracts, combinations, or conspiracies in restraint of trade where patents are involved, yet the fact remains that a patent monopoly may give the owner a unilateral power, either without any specific contract or by means of patent licenses which are in substantial effect unilateral, to interfere with the free flow of commerce in things which lie outside the patent monopoly.

Thus, throughout the history of the patent law, questions have arisen as to whether and to what extent the patent owner may use his monopoly to restrict a licensee or purchaser in the manufacture, use, or sale of unpatented things. The result has been to build up judicial interpretation by a considerable body of law within this field. Particularly in recent years the Supreme Court has developed a line of cases condemning unilateral uses of patent monopolies to restrain or interfere with the free flow of commerce in unpatented articles, materials, or industrial practices; and as part of this more recent development the Court has evolved the judge-made rule that a patentee who has so abused or misused his monopolistic rights is debarred from exercising those rights until the improper use has been ended.

This case-by-case judicial evolution of restrictions upon the activities of patent owners has been contemporaneous with growing concern about our patent system from two opposed points of view. At the one extreme are those who conclude that free competition calls for abolition of the patent laws, and at the other are those who regard these restrictions with terrified alarm as destructive encroachments upon the patent monopoly. Between these extremes, it would, I suggest, be possible for mature minds to find agreement on at least two principles: (1) that it is desirable, and consonant with the mores of the nation, to foster competition in the production of and among patentable inventions, and (2) that any restriction upon that exclusive right to make, use, and sell which characterizes the patent monopoly reduces the incentive of the grant and so tends to discourage disclosure and reduction to practice and to encourage secret trade practices in preference to disclosure, so that all excessive or unnecessary restrictions are dangerous in themselves.

It is clear that dividing lines in this field cannot accurately be drawn merely on legal considerations. Their location depends rather on the answers to practical economic questions in our complex and vigorous industrial structure. Unfortunately, there is a marked deficiency of real knowledge of the factors that determine the answers to these practical questions. The tendency has been rather to resort to emotionally inspired guesses, or even dogmatic assertions, both in and out of court.

Out of this situation arises a very serious question whether we should continue to rely upon the gradual, step-by-step development of these lines of demarcation by judicial process or make a carefully studied legislative attempt to define more explicitly and with more assurance of stability those activities of patent owners in the borderland of dispute that are acceptable and those that are forbidden. It would, of course, be possible to conduct this sort of rule making partly by legislative action and partly by a duly authorized and instructed administrative tribunal. The Clayton Act and the Federal Trade Commission Act are suggestive precedents.

DISCUSSION

GEORGE E. FOLK: Professor Vaughan represents our patent system as being afflicted with three evils; namely, "our patent system fails to promote public welfare in many instances because it discourages rather than encourages the inventor, it permits the suppression of patents, and it is a means of creating industrial monopoly and restraining trade." As a result of such incorrect diagnosis, futile, yes even harmful, remedies will inevitably be prescribed.

As to the first alleged evil, the opportunities presented to the present-day inventor are boundless. New fields for exploration and discovery are constantly being opened up to him. He may prefer the security and superior facilities now offered him by the research laboratory as against the uncertainties, hardships and lack of facilities too frequently encountered by the independent inventor, especially in the past. As a matter of fact even this independent inventor has a better market for his wares than ever before.

As Mr. Davis points out:

> It is within the memory of living practitioners of patent law that a principal burden of the inventor who sought to introduce into practice a substantial innovation in the useful arts was to get anyone to listen to him and to take the risk of changing from established practice to his proposed innovation; while today, particularly perhaps in the new fields of industry, it is more probable that his innovation will be seized upon by everyone in that line of manufacture before he can get it patented or make any adequate arrangements to protect the exclusive right that the law offers him in consideration of his disclosure.

As to the second alleged evil, incorrectly designated "suppression of patents," it is practically, if not entirely, nonexistent.

As to the third alleged evil, "industrial monopoly and restraining trade," the antitrust laws afford a powerful and effective weapon against such evil whenever and wherever it exists.

There are of course some improvements that can be and should be made in our patent system; none of which, however, would destroy that fundamental principle thereof which provides for the granting for a limited time of an exclusive right to an inventor for that which he himself has created, as provided for in the Constitution.

The radical, drastic, and destructive remedies called for by Professor Vaughan are neither necessary nor desirable. The remedy most stressed by him as a curative for each of the three alleged evils is compulsory licensing, a proposal which has been advanced in various quarters and in various forms for more than half a century. The Constitution sets forth a specific way by which Congress has the power "to promote the progress of science and useful arts." No authority is given to Congress under the Constitution to provide any award to the inventor other than an exclusive right for a limited time to his invention or discovery. While private ownership of property, including patent property, is essentially a limitation on the activities of others, it is also true that under our system of free enterprise, private ownership and complete control of the property involved not only promote free enterprise but are essential to it. Compulsory licensing is the very antithesis of an exclusive right, since thereby his right to exclude is taken away and the inventor is forced to share his invention with others.

Possibly the large corporations would benefit by compulsory licensing, since they would be given an additional weapon to use for acquiring the inventions of independent inventors and of small business enterprises, to both of whom patent protection is particularly vital.

In hearings that have been held on the several compulsory licensing bills, the testimony has been overwhelmingly to the effect that a compulsory licensing law would be especially fatal to numerous small enterprises which could not have become established or, if already established, could not continue to prosper without the protection afforded by the exclusive right granted by patents.

Compulsory licensing should be recognized for what it is—a sharing of property rights, as foreign to our American way of life as the "share the wealth" philosophy. The share-the-invention theory places emphasis on the division rather than the multiplication of wealth which latter is essential to higher living standards.

It would seem clear that if the patent owner is forced to license without his consent, the inducement to risk time, money, and effort to develop a speculative invention to its full potentialities would be removed, since the promoter would be in a position to suffer his own losses if he fails in his enterprise, but would have to share his success with others in case he succeeds. Society would, therefore, be deprived of many new products and processes.

The main argument advanced in favor of compulsory licensing by Professor Vaughan and by others of his school of thought is that patented inventions are being suppressed, one of the three evils which he charges exist. The statement to that effect has been made so often that, as is customary in such cases, the public is inclined to believe the charge because of its frequent repetition. Since each patent is given a number and a date it should be easy to specify by number and date the patented inventions which are suppressed if there really is such suppression. No such specific data is offered by Professor Vaughan or by others. The various commissioners of patents, who were in office since the question of compulsory licensing has been seriously considered, have stated that they knew of no such suppression. Thomas Edison at a Congressional hearing stated: "I have heard and read numerous statements that many corporations buy valuable inventions to suppress them, but no one cites specific cases. I, myself, do not know of a single case." Many others in a position to know have stated that they knew of no unjustifiable nonuse of patented inventions; that is, no "suppression of patents" in the sinister meaning of that expression.

Unfortunately, nonuse of patented inventions has been confused with unjustifiable or willful suppression thereof. These are wholly different things. Some of the reasons for nonuse of an invention are: (1) it may lack merit; (2) there may be no immediate market for it and the introduction of an innovation is frequently a difficult and time consuming matter; (3) there may be already in use a better and cheaper alternative for achieving the same purpose; (4) prospective investors might require prudent appraisal of the invention and its commercial possibilities before introducing an innovation;

(5) time and effort may be required to perfect a new product before it is in commercial form to put it on the market.

Those advocating compulsory licensing would deal with the patent as if it were a kind of public property for which of course the patent owner should be rewarded but the government should be left with the decision of how it should be used, to whom it should be licensed, and at what price.

Professor Vaughan recognizes the problem involved in equitable administration of a compulsory licensing system since he states:

> It would be impossible to appraise closely the relative merit or importance of kindred patents in the same industry owned by various individuals and companies; and yet this would be necessary in determining the royalties for each owner. Further, appraisals of patents would be modified as some patents expire and as others are issued. Also, a manufacturer in another industry might want a license under one or a few of these patents rather than all of them. Again, improvement patents would be differentiated and the royalty determined for each separately so that any lincensee could take any one or all of them.

Mr. Davis in his discussion of the subject points out an insuperable obstacle to a system of compulsory licensing as follows:

> But it seems quite clear that such a plan is wholly inappropriate to a system of private enterprise and investment. It needs but little knowledge of the magnitude, complexity, and dynamic character of technological innovation in our industrial life and of the limitations of democratic government to convince anyone that the administrative difficulties of a bounty system, substituted for the patent law, are insuperable; and a system of general compulsory license is essentially a bounty system.

Mr. Davis advances a constructive suggestion that would go far towards making out patent system a near perfect one. He advocates that the Patent Office be provided with an enlarged personnel and vastly increased store of information about applied science "to which not only the Patent Office examiners but the general public could resort with full assurance that it is complete and up to date." This is what the National Association of Manufacturers has been urging for years. The facilities of the Patent Office should be commensurate with its responsibilities.

The time allotted for this discussion does not permit a review of many of the points brought out in the two papers which have been presented.

In a footnote to his paper Professor Vaughan states: "A convenient summary of the recommendations of the Science Advisory Board, the TNEC, and the Patent Planning Commission may be found in George E. Folk's *A Review of Proposals for Revision of the United States Patent System.*" The additional topics presented here are discussed in that pamphlet. It may be obtained upon request, without charge.

Five eminent citizens representing, respectively, industry, science, labor, education, and agriculture were appointed by President Roosevelt to constitute a National Patent Planning Commission for making a thorough study of our patent system. As a part of its report the Commission stated:

> The system has accomplished all that the framers of the Constitution intended. It is the only provision of the government for the promotion of invention and discovery and is the basis upon which our entire industrial civilization rests.
>
> The American people and their government should recognize the fundamental rightness and fairness of protecting the creations of its inventors by the patent grant. The basic

> principles of the present system should be preserved. The system has contributed to the growth and greatness of our nation. . . .
>
> . . . .
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> The strongest industrial nations have the most effective patent systems, and after a careful study, the Commission has reached the conclusion that the American system is the best in the world.

Long may its basic principle, the grant of an exclusive right, for a limited period, to an inventor for what he has truly created, be preserved.

ALFRED E. KAHN: Our patent law, in every essential respect, dates back at least to the Case on Monopolies, 1602. It is not surprising that its operation has long given rise to the kind of complaints detailed by Professor Vaughan in his interesting paper. These complaints illustrate the basic dilemma which results from trying to preserve a free enterprise system while encouraging it to be progressive by granting legal monopolies to inventors.

Two general approaches have emerged to the solution of this dilemma—a problem essentially of making the law work better in stimulating technological progress while eliminating some of its demonstrated deleterious effects on our competitive system. The two papers which we have heard typify these alternative points of view.

Mr. Davis sees no necessary incompatibility between the patent law and free enterprise, under modern conditions. He explicitly assumes general agreement that the seventeen-year legal monopoly in exchange for disclosure is the best available method of assuring progress, stating categorically that any restriction upon this exclusive right "reduces the incentive of the grant and so tends to discourage disclosure and reduction to practice of technological innovations."[1] Thus he is concerned mainly with procedural reforms, to eliminate the incidental abuses which have crept into the system. To this end, he endorses a number of suggestions for improving the administration of the law—suggestions which have frequently been proposed and should certainly be enacted at once.

Professor Vaughan, while endorsing these suggestions, is more inclined to question whether the patent grant is basically appropriate today. It is my contention, and I believe his as well, that procedural reforms will be inadequate to mitigate substantially the evils which he describes. I believe the so-called "abuses" of the patent system are not surface blemishes, removable by improved administration of patent and antitrust laws, but chronic, organic defects, remediable only by considerable modification of the patent privilege.

Modern technology breeds patents by the thousands. Reduction to practice requires funding of numerous patents; i.e., abandonment of the individual invention as the basis for production. Yet this pooling presents a continual temptation, and supplies the power as well, to use the patent privilege to shackle enterprise, create monopoly positions, and hence indeed to dampen the progress of technology. The temptation and power must be removed.

[1] All quotations are from the manuscript which Mr. Davis made available to the discussants before the meetings. The paper which he read differed in some respects but in no essential respect from the earlier version.

For example, take Mr. Davis' suggestion that the courts henceforth recognize as evidence in patent infringement suits prior patent applications (instead of only those which have culminated in patents). This, he suggests, would relieve some of the burden of the Patent Office. But would we not, then, in addition to "dragnet" patents, have "dragnet" abandoned applications—even more numerous because they have not had to undergo the scrutiny of the Patent Office—clogging up the courts, and hamstringing independent inventors and businessmen? Again, what influence would the proposed twenty-year maximum protection for individual patents have upon the accumulation of hundreds of patents by large corporations, giving them perpetual monopolies over entire industries, regardless of the coverage or duration of the individual patent?

The antitrust laws apparently provide no answer to this phenomenon either, in the absence of definite evidence of collusion or predatory tactics. The legal doctrine that mere size is no offense applies to the corporation or pool administering hundreds or thousands of patents, and using them to dominate an industry, as it did to U.S. Steel in 1920. But in fact sheer size, backed up by thousands of patents, presents a persuasive force of such overwhelming power —upon individual inventors to sell out, upon competitors to come into the pool on terms set by it—that it is too dangerous to tolerate. There are ample illustrations of such abuses. Thomas Nixon Carver's shrewd observations about the importance of "mere size" apply even more aptly when the power that goes with size is reinforced by a pool of patents:

> If, without the slightest change of character or disposition . . . [the common house cat] were suddenly enlarged to the dimensions of a tiger, we should at least want her to be muzzled and to have her claws trimmed, whereas if she were to assume the dimensions of a mastodon, I doubt if any of us would want to live in the same house with her. And it would be useless to argue that her nature had not changed, that she was just as amiable as ever, and no more carnivorous than she always had been.[2]

Not only does the patent law have an inherent tendency to buttress monopoly power; it also creates impediments to technological progress. First, there are the discouragements to the individual inventor, stressed by Professor Vaughan. I am inclined to give this factor somewhat less weight than he, but must agree with him that greater competition among potential buyers of inventions and of the professional services of technicians can only improve incentives to invent. Second, there is the influence of patent-fostered monopoly power on the introduction of innovations. There is ample support both in theory and experience for the idea that companies enjoying a degree of monopoly power will show greater hesitancy than others in this regard, out of respect either for their own invested capital, monopoly returns which may be jeopardized by the new investment, or returns of other large companies, on whose toes they may be reluctant to tread. It may be true, as defenders of the patent system maintain, that there are few proved examples of outright suppression of commercially feasible inventions. But recent disclosures have abundantly documented this retarding tendency of patent-reinforced monopoly: in synthetic rubber, magnesium, methyl methacrylate plastics and dentures, tungsten carbide, higher potency pourpoint depressants, fluorescent lighting, longer-life flashlight batteries, the repeater match, to name a few cases at random. So, a limitation of the patent privilege which has the effect of moderating the patent's propensity for buttressing monopoly may have, on balance, a beneficent effort on technological progress, despite Mr. Davis' assumption to the contrary.

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[2] *Essays in Social Justice*, quoted by Frank D. Graham, *Social Goals and Economic Institutions*, pp. 220-221.

Compulsory licensing applied either generally or in specified circumstances would provide such a limitation. Here we encounter the real conflict between the two approaches to the patent problem. Proponents of this reform argue that it retains the benefits of the patent while removing its inherent susceptibility to abuse. In reply, Mr. Davis merely restates his assumptions—that such a change is "wholly inappropriate to a system of private enterprise and investment," that it is really a "bounty system." This contributes little to solution of the problem, which is not one of a simple choice between absolutes, but one rather of appropriate delineation of a governmentally granted privilege, so as to make it compatible with free enterprise. Besides, I fail to see how the term "bounty" would apply to private, voluntary royalty payments for the use of a valuable patent. Mr. Davis' explicit suggestion (in his verbal comments) that any one with a patent, good or bad, would, under such a system, obtain any payment from the government, or could enlist the support of the government to force people to pay him royalties, demonstrates a complete misconception of the proposal. As for the difficulties of administration, which he predicts, surely they will be no greater than those involved today in attempting, in modern technology, to stake out and delineate absolute, exclusive property rights over ideas. We are not dealing here with the natural rights of man, requiring jury trial and judicial appeals involving reinvestigation of facts, but with a franchise, royalties under which should be subject to successful administrative regulation, if necessary, in the same fashion as public utility rates.

We must face the possible effect of such a limitation of the patent grant on the incentive of inventors to disclose and of corporations to maintain research laboratories. No one can predict its consequences, for certain. However, with compulsory licensing, a policy of secrecy with regard to patentable inventions will probably not pay, by and large. For if anything is certain under modern technology, it is that different scientists, working on similar problems, with access to the same literature and scientific background, will come out with similar conclusions at much the same time, especially if the absence of patent protection permits them to copy. If this is true even of the atom bomb, which might already have been discovered in other countries but for lack of resources, how much more true is it of inventions requiring something less than a 2 billion dollar developmental expense! To refuse to disclose and take a patent is to forego the possibility of royalties, while facing the virtual certainty of competitive appropriation of one's ideas. The success which has attended suppression of know-how in the past, for example in the case of German chemical processes, would have been impossible had not American and British competitors been virtually prevented by their own patent laws from entering the field at all. Considering the nature of the process of invention today, it seems a fair conclusion that a seventeen-year monopoly, with all the power it entails, is too high a price to pay merely for disclosure.

As for the effect of compulsory licensing on corporate investment in laboratories, it is my feeling that the more effective the spur of competition, the more will businesses be forced to be as progressive as possible in order to survive—and compulsory licensing, with legal prohibition of all license restrictions on competition, will make competition more effective. Moreover, a valuable patent still gives its owner an advantage. All that is done is to remove its socially objectionable, restrictive features, which seem to have an inherent tendency to make trouble.

JOHN A. DIENNER: The discussion of the patent system by my honorable colleagues appears to me to be slightly out of focus. We have been induced to shed tears at the woes of the poor but honest inventor. We have been implored to pity the poor old government which must be protected from the consequences of its infringement of a patent which it has granted to some humble citizen. We have been stirred into resentment at the alleged wreckers of our country who it is said suppress patents, gouge the public, sell our economy out to the foreign devils, and raise hell in general. These ills are all ascribed to alleged faults or evil purposes of the patent system.

Before we get any more emotion or politics into the discussion, let us look around us and ask a few questions.

First, who is it that makes our patent system work? I have here a patented can opener. It cost me $4.95 at the hardware store. It will save me one thousand hours of frustration, numerous skinned knuckles, a considerable amount of profanity, and preserve to me the esteem and affection of my wife.

Some inventor, unknown to me, had the bright idea. He took a patent on it. The patent is No. 2,378,090. That does not mean anything to me or to you. When I bought this can opener, I did not look to see whether it was patented. It would not have influenced the sale in the least whether I knew it was patented or not. I am a consumer—just one of the people. I buy one of these new devices because I hope it will perform a service for me—as claimed in the ads.

Now who was it that translated the inventor's idea into this handy gadget? Was it the inventor? No. Was it the government? No. The government does not make anything which has any intrinsic value. You cannot open a can with a postage stamp or a dollar bill. Well, who was it? It was a manufacturing and distributing company, a corporation.

What did the corporation do to translate the idea into a can opener? First, they had to agree to pay the inventor for the idea. They did that either by way of purchase, or else rented the use of the idea by way of royalty, or they paid the inventor by way of a job, paying him a salary to invent things for them. Most inventors nowadays like to eat regularly. So they take jobs inventing things for a company which pays them regularly. So we will assume that this company took the risk of hiring this inventor and paying him a regular salary. That was the first risk—it probably was not a large amount as money risks go nowadays.

Then the company put its engineers on the job of designing the size, strength, and shape of the parts, and what they were to be made of, and laying out the manufacturing processes. Here begins a heavy risk, for the engineers must apply to the production of this simple device all the technical skills of every industry that bears upon its production. This is one of the things which is always overlooked; namely, that the public demands an article which is thoroughly engineered, so that all of the available skills of the related arts are applied to the manufacture of a specific device.

In this case they had to design dies which would have to produce thousands of parts before the cost of the dies can be amortized. These engineers figured the per unit cost of the tools and dies, the per unit cost of materials and supplies, the labor cost per unit, the overhead per unit, and figured in a small item of hoped-for profit. Unless the can opener can be sold at a price, the project might as well be abandoned.

The sales people are consulted as to how many of the can openers they can sell in the next ten years, what price they can get for them, and how they can best distribute them. Then also the designers, market analysts, and advertising people help to pretty-up the appearance, and figure out how and when to advertise it, and how it should be distributed, and who should sell it, and how many could probably be sold in the next five or ten years.

Over all these activities hangs the question of price. In a system of competitive enterprise, the price is of tremendous importance.

Doing a thing with modern technology is not too difficult, but doing it at a price is the real crux of free, competitive enterprise. If this can opener costs $5.00 or more, instead of the $4.95 which I paid for it, I, as a member of the public, would have refused to buy it, and I would still try to open tin cans with a kitchen knife, thereby skinning my knuckles, taking the name of my Creator in vain, and certainly continuing to quarrel with my wife.

Well, when the manufacturer gets this much behind him and starts actual operations, he finds that he has organized labor on his neck probably demanding a raise; the price of materials fluctuates and deliveries of it are irregular; the railroads may delay or stop shipments; the coal strike may cut off his power; the income tax collector suspects him of hiding the profits and the Commerce Department harasses and bombards him with innumerable forms to fill out with fifteen carbon copies. With all these things on his mind, no wonder he has insomnia as bad as King Solomon.

Now where does the patent system come in to help him? It is just this. To justify the possibility of carrying through the projected schedule of developing the device, and advertising, manufacturing, and selling it in the hope of ultimately making a profit, the manufacturer must have some degree of certainty. If he can be certain that he will have a market to himself in the making of this article long enough to pay his initial cost and enter a few years of profitable operation, he is willing to take all these risks and all these headaches involved in supplying this can opener to the people. A patent purports to give him just that; namely, the assurance that he can continue to have a market in these can openers without someone breaking in on his market with a copy of his device. Corporations are like living individuals in that they must try to live under all circumstances. Like individuals they try to attain security of position, and if possible to better that position. The security of a market limited in time and subject matter is of the utmost consequence to our can opener manufacturer, as it is to all manufacturers. The Constitution and federal laws have given him this pledge that if he bases his operations on a patented invention, he can have the market to himself so long as the seventeen-year grant of the patent lasts.

That, gentlemen, is the purpose of our patent system—to bring you and me such things as this can opener—at a price. Without the co-operation of many minds and many hands in the business organization known as the corporation, this excellent product at this low price would not be possible. The corporation that made this article needs a patent system in order to be certain of survival in a competitive economy. The fruit of the patent system is a new device in the hands of the consumer. Unless ideas are translated into things which the public can use, the patent system by itself has no meaning. Everything in the patent system should be slanted to make it bear the desired fruit of new devices, new processes, and new materials which serve the people.

It is true that some corporations have at times tried to obtain greater security and stability in the market than the patent system provides. They have done that either by attaching agreements to patents or by outright agreement not to compete. The people, speaking through Congress, have declared this to be illegal. Although we find instances of those who would break the law, that is not chargeable to any fault of the patent system. It has been determined that such agreements have the effect of reducing the advent of new goods and devices into the market of the people, whereas the patent system has for its objective increasing the rate of delivery or the rate of arrival of new goods and new devices into the market of the people.

The point which I hope I have made is that a true picture of the operation of the patent system does not reside in painting the alleged woes of the inventor and the alleged wrongs of the public, but requires a full portrayal of the important place which the manufacturing and selling corporation has in bringing the patent system to fruit in the form of new goods, new materials, and new devices in the hands of the people, at a price which they can pay.

Now let us examine one of the alleged sore spots known as the suppressed patent. Inventors sometimes complain that corporations will not use their patented ideas, and sometimes it is charged that corporations put patented ideas on the shelf and do not use them. In explanation of this topic, I shall try to make clear to you a phenomenon which I term the natural rate of assimilation of improvements.

To illustrate this fact, suppose we start out to fatten a pig. Just imagine we have before us a pig to fatten. That requires carefully feeding just enough corn to the pig that it will not be overfed or underfed. If we try to feed too much corn to the pig, it will both waste the corn and upset the fattening process. There is a maximum rate at which the pig can assimilate the corn, and if that maximum rate is exceeded, we upset our project. Our pig will have stomach-ache—indigestion to you.

Now, so it is with an industrial system based on free competition.

We saw above in the case of the can opener manufacturer that it took a certain time to digest and process the idea of the inventor into the physical can opener which arrived on the market.

Suppose while the manufacturer was preparing to manufacture the can opener some outsider would step in and say, "Here I have an improvement which you must embody in that can opener which you are designing." That would, first of all, delay the advent of the can opener on the market, and, second, it would increase the cost. If the improvement did not increase the salability or reduce the cost of the can opener in marked degree, it would be a great mistake for the manufacturer to try to embody it in his device. In other words, there is a natural tempo, at any given time in the development of our industrial system, which determines how fast improvements can be assimilated. If these improvements are devised and patented faster than the manufacturers can assimilate them, what is to become of them? They must be rejected. To say that they are "shelved" when the fact is that they cannot be assimilated is childish and unrealistic. So whenever you hear an inventor complain that the corporations would not use his idea, or you hear someone make the accusation that corporations are shelving patents, just ask yourself the question: Could they be trying to fatten this pig too fast?

And here I should like to say a word about the project of having the government enter the field of invention and development through the National Science Foundation legislation. The abundant fruit of the patent system which we have enjoyed for the past hundred and fifty years is a constant stream of new devices, new processes, and new materials which the public accepts and finds useful.

Now if the government unbalances this natural rate of the development of ideas and improvements and tries to force the feeding of the pig, are we going to have a healthy industrial system? Certainly not if improvements come faster than industry can assimilate them and the public can benefit from them. Our industrial system will have stomach-ache.

The natural law of supply and demand applies to improvements and ideas as well as to goods. You cannot expect to be able to feed improvements into our industrial system faster than they can be assimilated. When improvements are produced faster than they can be utilized some of them must go to waste. If this be "suppression," words have lost their meaning. Now it appears that Dr. Vaughan has regaled us with grisly tales of how some producers have employed patents as a means for effecting unlawful combinations or for imposing unlawful conditions upon licensees.

It seems to be undeniable that the human race has in its collective heart a certain yearning for larceny, particularly against the public. Two comments are in point at this stage: First, that larceny against the public is by no means confined to the patent as an instrument. To establish this point, I call attention to the published volume, *The Federal Anti-Trust Laws with Summary of Cases Instituted by the United States,* and list of cases decided there-under, published January, 1938. This purports to contain—and I accept the statement with the due caution which one often applies to a government publication (this one being a publication by the Department of Justice)—that the volume contains "A Summary of Cases Instituted by the United States under the Anti-Trust Laws." Case No. 1 is stated to have been filed October 30, 1890, and Case No. 428 to have been filed December 1, 1937.

I have examined the digests of these 428 cases to determine the basis on which antitrust violation was charged. I find in only 27 out of the 428 any mention of patents or licenses or leasing with conditions, or copyrights. There was only one case involving copyright. In other words, out of the total of 428 there were 422 cases which had nothing to do with patents and only 26 cases in which patents were a factor in violation of the antitrust laws. These figures do not seem to indicate that patents are of any substantial significance as the causative agent in violation of the antitrust laws, for the ratio of nonpatent cases instituted by the Department of Justice to patent cases is over 16 to 1. Patents do not appear to generate as much larceny as the reformer would have you believe.

Also, it is to be remembered that in the period between October 14, 1890, and November 30, 1937, there were issued 1,662,883 patents. There were at least that many patents in force, and out of the 26 cases of patent abuse, even assuming (without investigation of the facts) that each of the 26 cases involved about 100 patents, there were still about 1,660,000 patents during that period which were serving the people without running afoul of the Justice Department.

The second point I would call up for attention is the tendency of a civilization, as it grows more and more developed, to shrink all monopolies, even though legally granted, to the minimum requirements for carrying out the policy for which they were granted. To illustrate this shrinkage of monopoly as industry and technology become more complex, all we need to do is to consider history. I do not have time, in this brief appearance, to discuss the history of monopoly and its constant shrinkage by forces tending to confine it to its essentials, but it is a fascinating story which starts with broad grants of monopoly, such as the Hudson's Bay Company, established for the purpose of procuring a steady flow of furs to England, and the East India Company, for insuring an orderly supply of tea to England, and certain of the Colonial grants, on down through the ramifications of public service monopolies and private monopolies in the form of land grants and grants of patents which latter have been more and more confined to the exact scope of the grant, and even to the exact scope of the invention on which the grant is founded.

Professor Vaughan's recapitulation of the alleged abuse of patents in various situations, if analyzed, amounts to no more than an orderly shrinkage of monopoly to its essentials. That is a sound development which is still proceeding. But it contains absolutely no implication that the patent monopoly as such is bad in principle or practice, nor that the fundamental philosophy of the Constitution in this respect was or is erroneous.

There is one more point I wish to cover, and that is the discussion in regard to compulsory licensing of patents. Will Davis has stated that a system of general compulsory licenses would reduce the patent system to a bounty system. I cannot agree that that is a correct statement. A typical bounty system is one which pays off the one who performs the desired service. When the bounty is paid the one who collects it generally has no further interest in the subject matter. The difference between a bounty system and a true patent system is that if you give a man a bounty, even though graduated to the degree of use, the incentive upon the patent owner to start to supply the goods to the public in order to secure a return is lacking. The Russians use a bounty system in rewarding their inventors. The difference between the bounty system and our patent system is that under the patent system no money whatsoever can be realized from the use of the monopoly until goods are supplied to the public. In other words, until an enterprise of making and supplying the goods is in actual existence, the owner of the patent monopoly gets nothing from the people. Hence, the inducement is to found or establish the industry of making and supplying to the public. Under the pure bounty system of the Russian type, when the inventor receives his reward in the shape of money or better living conditions or the like, he loses further interest in the invention. The state takes over.

Under a compulsory license system, the patentee is supposed to assume the risks of supplying the new device to the public and if his try is not quite as good as some larger outfit could do it, he would find his opportunity to correct his mistakes gone, because his larger competitor would be right there with a petition for a compulsory license with ample proof that the patentee had failed to supply the demand, and that the interloper was just the man who could do it. Always remember the comment of Alcibiades. Said he, "Have you ever noticed that the candidate for the office can always promise more than the incumbent is able to perform?"

In order to understand the basis of the compulsory license doctrine, one must go back in history. When patents were first granted in some of the European countries, it was realized that the exclusive right of making, using, and selling might be and probably would be in the hands of foreigners, whose countries were more highly industrialized. The result would be that the patents in the hands of foreigners would protect him in the importation of the patented goods from abroad without the employment of any local capital or labor. This would mean an unfavorable trade balance and a retarding of industrialization of the country into which the patented goods were imported. This policy of granting patents to foreign inventors without any assurance of production of the patented article in the country of introduction would tend to retard the industrialization of a backward country. So, many of the European nations passed laws requiring the working of the patents in order to keep them in force. The penalty was cancellation of the patent for failing to work the same in the country in which the patent was granted.

But these countries quickly found out that a canceled patent was totally ineffective in establishing any industry of supplying the subject invention to the people of the country. So it was regarded as better policy to allow the patent to stand even if not worked, but to offer the opportunity to anyone who would work them to do so upon showing that the owner of the patent was not actually working the patent in the country of introduction. It was primarily a problem of how to prevent being dominated economically by foreign interests through patents.

In a country like the United States where most of the patents are on inventions made by citizens of the United States and the skills and technology are as well developed as anywhere else in the world, and where we aim to maintain a competitive economy, the necessity for the compulsory license does not exist. In my view the compulsory license system is not as good as a straight bounty system, nor as good as a straight monopoly system. Of course, the United States cannot make all the useful inventions, but so large a majority of all of the useful inventions patented in the United States are made by United States citizens that there is no necessity for subjecting all of the patents of American citizens to compulsory license in order to catch the few stragglers that come in from other countries, no matter how important the individual instances may be. To illustrate what I am talking about, I submit herewith a table showing the foreign holdings of domestic patents in various countries as the same stood, in approximate figures of about 1940:

Countries	*Foreign Ownership*
United States	10%
Germany	25
Japan	25
England	50
France	50
Holland	80
Canada	90

People say England has a successfully working compulsory license system. Yes, it found it had to have one to meet the threat of the German Dye Trust, and the Act, while applying to all patents, was aimed at the danger of foreign control of English industry by foreign owners of British patents.

As I pointed out above with the can opener manufacturer, the corporations that have the very heavy burden of paying for the creation of the invention, developing it, manufacturing and marketing the device, and putting the same in the hands of the people are insistent that there is no need in this country for a general compulsory licensing system.

There is no inherent sin in the patent monopoly, because it takes no existing thing from anybody. There may be defects or loopholes in present procedures. There may be sinners who use patents to effect their evil purposes. There may be faults in the administration, but the policy of granting the exclusive right for a limited time is sound and must be preserved.

FRANK B. JEWETT: With regard to Mr. Davis' paper, there is little I can say by way of comment or extension. Much of it is concerned with Patent Office procedure or the legal phases of the patent system about which I am not competent to speak with any authority of training or experience. In the main I am in agreement with his views.

On one or two matters I might add a word or two. I am inclined to think that substitution of a total of twenty or so years of elapsed time between the date of filing and the expiration of the patents for the present seventeen year life of the issued patent would tend to minimize some of the present dissatisfaction. If such a scheme is adopted, however, inventors must be assured that action in the Patent Office itself will be prompt at all stages. Much of the delay now complained of at this stage is not wholly chargeable to the applicant but is in the Patent Office itself. The existing backlog is proof of this. Unless this can be assured, the inventor and in many cases the public who might profit by the exploitation of his invention may be heavily penalized by the short period his patent has to run.

In the matter of a single court of patent appeals, I am in favor of it. My study some years ago on various committees set up to study possible improvements in the patent system convinced me that such a court would be an aid, not only to the inventor and the owner of patent property, but to the Patent Office itself and would result gradually but inevitably in the issuance of better patents. Such a court might and probably would have to be ambulatory in part in order to lessen the burden of cost and inconvenience on litigants. I have never been much impressed by the arguments that such a court would tend to become ossified simply because it was dealing with a specialized field of law. If there is such danger some such provision of limited term service as Mr. Davis suggests would seem to me fully to meet it.

Certainly a single court of appeals should gradually and, I think, rather quickly establish stable rules and criteria of patentability to replace the rather erratic system of present procedure.

One of the most troublesome things to both patent owners and the Patent Office in present procedure is uncertainty as to just what the law as construed by the federal courts is. A decision in one court or one jurisdiction is no guarantee that it will be binding elsewhere. Frequently, as conflicting decisions on the same or similar patents evidence, it is not. It is only in the relatively few cases where such conflicts are of sufficient importance to come before the Supreme Court or in the rare cases where that Court takes a case on certiorari that really constructive help is given. A properly constituted single court of patent appeals would tend largely to ameliorate this condition.

As to Dean Vaughan's paper, my feelings are quite otherwise. I do not know the history of his experience with the actual operation of the present system. While he has clearly given much study to it, I can hardly believe he has had much actual experience in trying to operate patents for the benefit either of the owner or the public. Be that as it may, his conclusions on many points are so at variance with my own forty years' experience of trying to live constructively with the system that it is quite impossible for me in the few minutes at my disposal to discuss our divergencies in detail.

Under the circumstances, it seems to me that in the five or six minutes at my disposal the best thing I can do is to state briefly my views on a few of the points Dr. Vaughan has elaborated.

Although possibly implied in his opening sentence, I think Dr. Vaughan omitted to state one of the principal underlying purposes of the patent system; viz., to stimulate elimination of secrecy. This was a primary objective which the drafters of the system sought to accomplish by offering to the inventor the legal protection of a limited property right if he would publish fully his invention. This consideration has been and is a great stimulus to invention and of great value to the public even though the inventor elects, as may sometimes happen, to do nothing with his patent during its limited life.

I disagree entirely with Dr. Vaughan that the system as we have operated it in the United States is a discouragement to invention. Quite the contrary. Despite the many defects which I think exist in our procedures of granting and administering patents, I think that the over-all result has been one of great and continuing stimulation. Further, I think that despite its defects the system has so far proven to be the best and most equitable one that any nation has yet devised.

Moreover, while individual cases of inequity for the inventor can doubtless be cited, I am certain that over the years more inventors have profited and profited more than under any other system yet devised. Certainly both they and the public have profited more than if there had been no such system.

While an ideal patent system would probably be one in which the Patent Office issued only valid patents on inventions that had real merit and so obviated all court procedure, such an ideal is obviously an unattainable Utopia. In the last analysis a court of justice is the only place where final judgment on validity and infringement can be had. This for the simple reason that only then can *all* the pertinent evidence be adduced. Even then, uniform procedure can be assured only if standards of what constitutes patentable invention exist.

I have never yet seen any evidence of any substantial or, in fact, any proven evidence of willful suppression of patents—certainly not of any that were really meritorious. The reason for this is simple: patents are extremely short-lived and very fragile property and if the owner is to profit fully from them they must be employed in some way. They are always faced by the danger of complete annihilation overnight by the appearance of a new and better invention.

The number of *unused* patents is legion, growing, and a general nuisance to everybody. Many of them of course have no real merit. Others have some merit but not enough to compete with better or more economical ways of doing something. The files of most industries and of many prolific independent inventors are littered with such unused patents.

In the main, they arise from the fact that the inventors, individual or group, with an idea usually have several promising leads for its development. Since the time between the inception of ideas and their appearance as a finished article is usually long, the inventor does not know which of his alternatives is the one finally to be employed. Since he must protect himself in the interval, he applies for patents on all the alternatives and in due course several patents may issue, only one of which will survive in use. The rest are added to the stock pile of unused or so-called "suppressed" patents.

If I were in a competitive industry I would gladly give all these unused patents to my competitors (even pay them to take them) if they would agree to operate under them in our competition.

If there is evil in this mounting pile of so-called "suppressed" patents, then the federal government is by far the greatest single criminal in the land. Sometime Congress may have to take a drastic hand with regard to this property which belongs to all of us but much of which, if it has merit, can only be developed by a socialized state or by giving special privileges to some of us. Who shall the favored ones be and how selected?

During the war and at present with a vast amount of research and development work being done with the support of federal aid, the patenting of results has become a fetish. The flood of applications flowing into the Patent Office is becoming a torrent and an innumerable host of patents—mostly trivial—will result.

Until Congress finally establishes a policy for all departments of how to deal with this property to which it holds title for one hundred forty million people, much that may have merit will lie fallow because no one will venture development funds. Further, it is a growing threat to the patent system itself since now no one is constrained to pay attention to government-owned patents since he is sure that he is little likely to be sued for infringement unless perchance what he does is clearly inimical to the national defense.

Such an attitude toward so vast an assemblage of patents is sure to breed disrespect for all patents.

A CONSIDERATION OF THE ECONOMIC AND MONETARY THEORIES OF J. M. KEYNES

AN EXPOSITION OF KEYNESIAN ECONOMICS

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In this paper I shall attempt to give a simple and acceptable account of Keynesian economics. I have no particular qualifications for this task; there are many others who know more than I about *The General Theory* and the writings that derive from it. But since my responsibility is, as I understand it, to discuss not the fine points but only the broad outline, this lack of special knowledge may not be a serious handicap. My hope is to present a picture of Keynesian economics that will be found generally accurate by most of you, and helpful, as a review or refresher, by a few.

I cannot expect this account to appeal to economists as accurate in its details. The very development of Keynesian doctrine would make any such expectation unreasonable. The doctrine had, for most of us, its beginnings in *The General Theory;* it was molded and qualified in the writings of Robertson, Hicks, Lange, Samuelson, Shaw, and many others; and it has been modified still further in our minds by the events of the last decade. It would be strange, consequently, and indeed disappointing, if *The General Theory* said the same things to us today that it did on its publication. And it would be strange too if this account of contemporary Keynesian doctrine conformed in all details to yours. But perhaps the essential points of the outline will not be challenged.

I. *Dependence on Neoclassical Doctrine*

Before introducing the novel aspects of Keynesian economics, I should like to emphasize its considerable dependence upon classical and neoclassical tradition. That this dependence should exist will not surprise those who know of Keynes's background. He was surrounded by and he lectured on the Cambridge version of neoclassical economics for many years. A strong reliance on these doctrines is consequently to be expected. That he himself did not in *The General Theory* point out this dependence—but, instead, sought to emphasize his break from the earlier doctrines—must be regarded as a tactic of persuasion rather than as an objective statement of the relation between his own work and conventional doctrine. His *Treatise on Money* marks his greatest departure from neoclassical economics and by the time he wrote *The General Theory* he had found a way to reconcile his monetary theory and the neoclassical tradition. Indeed, a good case can be made for the assertion that the doctrine of *The General Theory* was mothered by the *Treatise* and fathered by neoclassical economics. If so, we should have to admit that the child suffered from an extreme Oedipus complex.

The Aggregate Supply Function and Classical Economics. There are two points in particular at which classical doctrine enters. Let us consider them briefly. Keynes introduces the first of them under the title "the aggregate supply function." His concept is obviously closely related to the familiar supply function of neoclassical economics. This function expresses the relation between the output of a firm or industry and the price offered; normally, the higher the price, the greater is the output. His concept though it differs in minor ways is basically similar. In place of the output of a single commodity, he deals with the total production of the economy; instead of measuring total production in physical units, he measures it in terms of total employment; and finally, rather than expressing the independent variable as an offer price, he uses for his variable, businessmen's expectations of sales receipts. His aggregate supply function is, then, a generalization of the substance of the classical function. While the latter gives a determinate answer to the question as to how much a firm with given costs will produce when the demand for its product is known, the aggregate supply function implies that there is a determinate answer to the broader question of how much will all firms produce, or how many men will they hire, given their costs, when the size and composition of the aggregate demand are known?

The General Theory, I believe, marked a great advance over the *Treatise;* and this advance depended to an important degree upon a shift in emphasis. In the *Treatise,* Keynes was interested directly in the general price level; and in *The General Theory,* in the national income. The shift in his emphasis occurred, according to my lecture notes, in 1932, or possibly earlier, and it was at this time that he introduced the aggregate supply concept. The significance of this common date should be noted.

Income, the Value of Output, and Classical Economics. The second aspect of classical doctrine that Keynes adopted consists in his use of a part, though certainly not the whole, of the classical law of markets. He does not, of course, go as far as Say; he rejects Say's law that supply creates its own demand. But he goes part of the way; if supply does not create its own demand, at least it creates the income from which a part of the demand stems. This statement, that production is the source of all income, or more precisely, that the national income or social dividend equals the value of current output, has been accepted generally by classical economists. Moreover, the equality of the value of output and the national income has long been recognized by national income statisticians. For instance, in its first publication, *Income in the United States —1909-1919,* the National Bureau of Economic Research stated: "The fundamental concept of the National Income which underlies the Estimate by Sources of Production is the same as that underlying the Estimate by Incomes Received. In both estimates the National Income is taken to consist of the commodities and services produced by the people of the country or obtained from abroad for their use."[1] Or again: "Hence it seems that an estimate of the incomes received by all individuals, plus the undistributed incomes of business enterprises, should produce the same figures as the Estimate by Sources of Production, were the data complete and correct on all heads."[2]

At this point some must be asking which of the many available income concepts is concerned in this equality. The answer that I prefer (the gross national product) cannot, I regret, be developed in the time available. Keynes did not, of course, when he was writing *The General Theory* have the valuable July supplement to the *Survey of Current Business* and it is not easy to match his income concepts to the newer ones. But in any case a clear understanding of Keynesian doctrine can be got without examining these technicalities.

The main points of Keynesian doctrine are developed upon these classical foundations—the aggregate supply function and the equality between national income and the value of output. Indeed, starting from the neoclassical position, we can go much of the way towards a formulation of income theory in Keynesian terms before we have to introduce anything that explicitly contradicts other parts of the classical doctrine. Let us see what kind of structure we can build upon these foundations.

II. *Income and Aggregate Spending*

In accordance with what Keynes accepted of the law of markets, we conclude that when the value of the economy's output in a year is, say, 225 billion dollars, the national income is 225 billions. Our first step, then, is that the national income varies directly with, and indeed equals, the value of output.

What then determines the value of output? Output is valued in the only possible way—by what buyers pay for it. If the value of current output is 225 billion dollars, it indicates that buyers paid 225 billions for it. The national income for a year equals the annual spending of all buyers on current output.

In accordance with the aggregate supply function, output and employment are seen to vary directly with total purchasing, or, looking at it from the buyers' viewpoint, with total spending. Therefore we may conclude that output and employment vary directly with the national income and this, as we have already seen, equals aggregate spending on current output.

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[1] *Loc. cit.,* p. 42.

[2] *Ibid.,* p. 43.

Our problem is to discover the factors that determine the size of the national income and the level of employment. The first stage on the way to a helpful answer is reached when we see that the sought-for determinant is aggregate spending. But this does not go far enough, and further analysis is needed. Before taking this next step, however, it is desirable once again to emphasize that there is nothing especially Keynesian about our answer—certainly not in this formulation. While a classical economist would perhaps not find it helpful, he would, I believe, be forced to recognize that it was consistent with at least a part of classical theory.

III. *Further Analysis of Aggregate Spending—Consumption and Investment*

The objection to ending the analysis here is this: aggregate spending covers such a multitude of activities and it is guided by such a variety of motives that it seems impossible to say anything meaningful about the factors that cause it to vary. After all, a business decision to order a new rolling mill rests upon considerations as different as possible from a government decision to hire school teachers or a consumer decision to buy more clothing. Since the spending stream is made up of such diverse elements, we can expect to find an explanation for changes in its volume only by looking into it more carefully.

The obvious next step is to divide the spending stream into its relatively homogeneous components, which means to classify spending by type of buyer. While buyers could be divided in various ways—for example, as they purchase durable or nondurable goods—Keynes finds it useful to separate them into four groups: consumers, business concerns, government bodies, and foreigners. The sums spent by consumers, he calls consumption; the amounts spent by the other types of buyers are, in order, private investment (normally this category includes housing), public investment, and foreign investment. Consequently, total spending on current output equals consumption plus investment, private, public, and foreign. And total spending on current output also equals the national income. Hence, the national income is equal to consumption plus investment.

It is doubtful whether anything novel, or at any rate at variance with the classical tradition, has been introduced up to this point. If a classical economist can accept the equality between the national income and the value of output, he should have no difficulty, once that output has been classified into goods for consumers, business, government, and foreigners, in accepting the above formulation. Though the formulation at which we have arrived sounds somewhat Keynesian, the sense can still be derived directly from classical teachings.

IV. *Reformulation: Income, Investment, and the Propensity to Consume*

But this formulation is also open, as we shall see, to a serious objection, and a different way of putting it is called for. We substitute for the statement, income equals consumption plus investment, the statement, income depends upon the propensity to consume and investment. In this form we say no more than before, and the transformation is straightforward once we have introduced the propensity to consume. Why then, we may ask, should we bother to introduce this confusing concept, and simply restate a truism?

The answer, I believe, would run as follows: because in the revised form it discloses factors that are operationally significant; secondly, because it gains in simplicity and elegance.

The objection to the formulation "income equals consumption plus investment" is easily seen. Income depends partly upon consumption, but obviously consumption depends amongst other things upon income. Hence income depends in part upon income. Evidently one avenue in the maze through which we are trying to thread our way leads promptly back to the beginning, which is awkward. Moreover, this false trail diverts attention from other paths that do lead to a solution. What we have, to use an analogy with elementary algebra, is an equation with an unknown that is represented at least by implication, on both sides. It is not a fatal difficulty—the circularity is benign rather than malignant—but it is inconvenient. By re-expressing it, we can avoid this inconvenience, and at the same time provide helpful guidance to the investigator—guidance that will keep him from wandering up blind alleys and along roads that lead only to the starting point.

The Propensity to Consume. It was noted above that consumption depends, amongst other things, upon the national income; these other things, or rather their joint influence, Keynes brings together under the title "The Propensity to Consume." This is the name, then, for the function that relates consumption and income. It is not of course the *ratio* of the two, unless the function can be expressed in this simple form—and there is no statistical evidence that it can. It is simply, to repeat, the relation between consumption and income—the income-consumption function or the income demand for consumers goods. It follows, of course, from the definition of the propensity to consume that consumption is determined by it and the national income, and by these two factors alone.

Now let us return to the formulation to which we objected earlier: income equals investment plus consumption. We can bring out into the open and thus rid our formulation of the element of circularity present in it, if we substitute for consumption its two determinants. Doing so we have: income depends upon investment, the propensity to consume, and income. Now that we have isolated the unknown on both sides of the expression, we can simplify to: the national income depends upon the propensity to consume and investment.

This is the formulation at which Keynes arrives in *The General Theory*. I think it is worth emphasizing that while a classical economist may not find it useful, he would agree that it is based upon an equality accepted in conventional, pre-Keynesian theory. The dependence of the national income upon investment and the propensity to consume is derived directly from the fact that the value of current output equals the income earned in producing it. Once that fact is accepted, the final statement follows.

But to say that this statement about the determinants of the national income can be derived from pre-Keynesian doctrine is not to imply that Keynes said nothing new, or that the classical economist must accept the Keynesian position. What it does suggest is that the points of substantial difference are to be found elsewhere. They will be found, I shall try to show, in the analysis of investment, or rather in the relation between consumption and investment. It is here that the Keynesians and those who do not accept his analysis are farthest apart.

V. *Analysis of the Propensity to Consume*

Before explaining these differences it is desirable to examine the Keynesian doctrine more carefully. Since income is seen to depend upon the propensity to consume and investment, we shall have to investigate each of these determinants in turn.

What Keynes has to say about the propensity to consume is straightforward. This function, since it covers the effects of all the factors that influence consumption except for income, will be affected in many ways. To indicate some of them, it will be affected by a change in the price level, in the distribution of income, in attitudes towards thrift, in holdings of liquid assets, in the state of the stock market, in the tax structure, in the interest rate, in the dividend policy of corporations, and by changes in many other variables. In fact the list is as long as the list of forces that determine consumers' spending. To say that the national income depends, in part, upon the propensity to consume does not provide a complete answer to our question, but it does suggest directions for further analysis.

VI. *Analysis of Investment*

The analysis of investment is rather more complicated. Investment can be broken down, as we have seen, into three components: private, public, and foreign. The economist in his professional capacity can say very little about the forces that determine the second of these—public investment—except possibly to point out that his voice is normally not heeded when such investment decisions are made. Keynes had very little to contribute to conventional doctrine on the determinants of foreign investment. Exchange rates, comparative prices, costs of transport, and so on, are the critical factors. His major contribution—and most important break with earlier doctrine—is in his analysis of the determination of private investment.

Private investment consists of the spending of business concerns, except for expenditures that just maintain working capital inventories, and in addition of the spending on private housing. Private business investment—the spending of business firms—is directed towards the acquisition of plant and equipment (including repairs) and to the building up of inventories of raw materials, goods in process, and finished goods. Of course, when inventories are allowed to run down, this part of private investment is negative.

Since private business investment is undertaken by firms generally seeking to maximize their profits, it follows that the amount of their expenditures will depend in some way upon profit considerations. A firm will embark upon an investment project when it expects that course of action to be profitable; otherwise, it will not undertake the project. It will, to put this concretely, order an extension to its plant, or arrange to have its equipment repaired, order new equipment, or build up its stocks of raw materials when it expects to earn more by doing any of these things than it would earn by doing nothing.

Hence the test an investment project must pass if it is to be carried out is this: the money invested in the project must be expected to yield a rate of profit before paying interest that exceeds the interest rate applicable to the firm. If money can be borrowed by a certain firm at 3 per cent, and if that firm believes it can acquire investment goods that will, over their life, return 4 per cent annually on their original cost, after allowing for depreciation but before subtracting the interest charge, it is worth while for the firm to make the investment expenditure. It will, by doing so, add to its annual profits during the life of the asset a sum equal to 1 per cent of the original outlay. Thus, at any date it is worth while for firms to initiate, carry on, or complete every investment project whose anticipated yield measured against the cost of acquiring the good exceeds the particular interest rate facing them.

The Marginal Efficiency of Capital. Keynes names the anticipated yield over the cost of any particular project "the marginal efficiency of capital of that type"; while the schedule of yields anticipated on all possible projects he calls "the marginal efficiency of capital." We have already seen that a project will be undertaken if its marginal efficiency exceeds the rate of interest; hence the dollar value of projects to be carried on depends upon the marginal efficiency of capital, in the schedule sense, and the interest rate.

As Keynes has pointed out, his marginal efficiency of capital concept is identical to Irving Fisher's "rate of return over cost," and it is similar to Marshall's "marginal utility of capital." Because of its familiarity, there should be no serious difficulty in grasping it.

The factors that determine the marginal efficiency of capital are as numerous as those that determine the propensity to consume, though they are, perhaps, more uncertain in their operation and more sensitive to sharp shifts of judgment. For instance, if it is proposed to put up a new plant, it is necessary in estimating its lifetime per cent return over cost to guess about the market for its product for perhaps forty years into the future, and to do the same for the cost of operating the plant. It is obvious that any long-term market or cost forecast of this kind will be uncertain and subject to drastic revision. Some of the factors that could be expected to condition these forecasts are: the existing market for the product, the likelihood that new competitive products will be developed, the productive capacity of the industry, the cost of the capital goods, the general state of business confidence, and so on. In brief, we should want to include in the list all but one of the factors that determine how much expansion it is profitable to undertake, that one being the interest rate, which is considered separately.

VII. *Analysis of the Interest Rate*

The marginal efficiency of capital is but one of the determinants of private investment; the interest rate is also important. Hence, if we are to round out this analysis we must analyze the forces that set the interest rate. In Keynes's account, its determination rests upon monetary factors—as it should, so he thinks, since it is the price paid for holding wealth in the form of money or, in other words, for borrowing.

When the interest rate is set at any level—that is, when the prices of bonds and other debt instruments are established—it shows that the market does not wish on balance to alter the form in which it is holding its wealth. Those with wealth are content to maintain the existing distribution of their wealth as between money, bonds, and other assets. This must be so for, if they were disposed to change that distribution, they would, in attempting to do so, bid up or reduce the price of bonds. Hence, when the interest rate is set, it means that the economy does not wish to hold either more or less of its wealth in the form of money. It is satisfied, in the circumstances, to hold the amount of money it has. And of course the amount of money it has is precisely the amount that has been created by the monetary system, since after all every bit of money in existence must have a resting place somewhere. Thus we may conclude that the interest rate is determined by two data: the strength of the economy's desire to hold its wealth in money form and the amount of money in existence.

A more detailed examination of the considerations that determine how much of their wealth the members of the economy wish to hold in the form of money will show more clearly how the interest rate enters into the picture.

The Liquidity-Preference Function. The motives for holding *money* are threefold: first, to provide convenience in transactions; second, to provide protection and the means to exploit opportunity in an uncertain world; and, third, to avoid a capital loss feared because of an expected decline in securities' prices. In other words, money is a desirable form in which to hold some wealth, because bonds cannot be spent and they may sometimes be expected to fall in price. Bonds are neither a medium of exchange nor a satisfactory store of value, and money is both. But money, unlike bonds, does not yield anything except the convenience and speculative utilities already noted. Hence against these advantages of liquidity, the holder of money must set the disadvantage that it does not multiply, that his wealth held in that form does not grow. Consequently, we should expect the economy to choose to hold less of its wealth in liquid form when interest rates are raised, and vice versa. This conclusion is, I believe, obvious insofar as it concerns the convenience—and precautionary—motives for liquidity. In considering the amount of money held for speculative considerations, we must remember that that depends upon expectations as to the future course of bond prices. When the views of a part of the market shift to the bearish side, and bond prices are expected by that part to fall, there will be a tendency to move out of bonds and into money, and a shift in the opposite direction will occur when a part of the market comes to expect bond prices to rise. We can suppose that market opinion will become more bearish when interest rates fall to an abnormally low level; that is to say, when bond prices rise to a figure that seems abnormally high; while we may expect the market to become increasingly bullish as interest rates rise towards a level that appears abnormally high. This means that at very low interest rates the speculative motive for holding money will strongly reinforce the convenience motive and the economy will accordingly want to hold a great deal of its wealth in liquid form; at very high rates, the amount of liquidity desired on this account will be much lower.

The relation between the amount of liquidity desired and the rate of interest, Keynes calls "liquidity preference" or the "liquidity function." And since, as we have already seen, the interest rate is determined at the point that equates the amount of money people wish to hold with the amount in existence, it follows that the interest rate depends upon the liquidity function and the amount of money.

VIII. *Relation Between Consumption and Investment—Contrast with Classical Doctrine*

This analysis of the determinants of the interest rate, perhaps re-expressed in terms of loanable funds, could be expected to appeal to specialists in money and banking. But economists who prefer to explain the interest rate in *real* terms would obviously be less happy with it. There are, of course, many reasons for this, but one of them is particularly worth noting. In the Keynesian account, an increased *desire to save* which, of course, is not at all the same thing as a reduced *desire for liquidity,* would not be expected to lead to a lower rate of interest, or if it does so, only by bringing about a fall in business activity and the national income. If the interest rate does not fall or falls only because of a decline in the national income, investment will not increase by enough to offset the decline in consumption. Indeed we may go further. If consumption expenditures should decline, businessmen would normally consider the inducements to purchase investment goods weaker. Hence, there is no reason to expect the interest rate to act as an equilibrating force that serves to maintain a full prosperity national income, when for instance thriftiness increases.

When the demand for consumers goods falls, we may then expect a reduced demand for investment goods; and as the multiplier process suggests, when the initiating force is a decline in investment, we can expect a decline in the demand for consumers goods. Instead, then, of a model in which a change in the demand for, say, consumers goods is likely to be offset by a change in the opposite direction in the demand for investment goods, Keynes proposes a more realistic model, one in which a change in the demand for the goods of one type is likely, except when we start with full employment, to cause a change in the same direction in the demand for the other. Consumption and investment, in the normal case, move together. The economy does not normally, if it cuts down the output of one, find a motive for increasing the output of the other.

IX. *Summary*

Before considering some of the implications of this analysis let me briefly summarize.

The skeleton of the theory is simple: The national income depends upon investment and the income-consumption function. Investment, or more accurately private business investment, depends upon the marginal efficiency of capital and the rate of interest; the rate of interest depends upon the liquidity function and the amount of money. The determinants of the marginal efficiency of capital and the propensity to consume are very numerous; some of them were listed earlier.

X. *Some Implications*

The skeleton alone gives us some suggestions for policy; for instance, that when there is unemployment, efforts should be made to increase investment (private, public, and foreign) and the propensity to consume. It also implies that an economy can be in equilibrium at less than full employment, that circumstances can rule in which there is no natural tendency towards peak prosperity. I am sorry that I have no time to consider the other alleged equilibrating factor—changes in wage rates. Keynes's conclusions on this are, I suppose, well known.

The application of this analysis to an actual situation requires judgments as to the quantitative response of the determinants to various changes. How greatly, for instance, can we expect investment to be affected when the interest rate is lowered? How would a change in the wage rate affect investment and the propensity to consume? Is investment greatly influenced by the rate of growth of population? Would a 50 per cent increase in the stock of capital goods bring about a large reduction in the marginal efficiency of capital or a small one? These are important questions and the answers put flesh on the skeleton of Keynesian economics. But Keynesian economics does not consist in the answers to these questions. An economist who accepted the Keynesian outline could claim, though most Keynesians would disagree, that private investment could be greatly increased by a minor reduction in the interest rate, and he would then urge a mild expansionist banking policy during depression instead of a policy of, say, public works. Or one might support a wage cut if he believed that it would favor investment and the propensity to consume. Keynesians do not all have to prescribe the same medicine.

It is commonly believed that Keynesian economics should be identified with the "mature economy thesis," or with a predilection in favor of government controls. This is nonsense. Not all who accept these insidious, as they are now regarded, views are Keynesians. And likewise it is not necessary for all those who are optimistic about our long-term prospects, who wish to encourage private investment, and who abhor government intervention, to oppose the central themes of Keynes's doctrine, though obviously many of them will do so.

Keynes's account of the determinants of the national income in terms of investment and the propensity to consume seems to me to represent his important contribution. His views about the quantitative aspects of the implied relations should be judged separately. Perhaps they were right for England in 1936; perhaps they were applicable to this country in the thirties. Perhaps they are applicable today and will continue to be. But in any case these matters should be kept quite separate from his account of the determination of the national income in a capitalist economy. Whatever our views on, say, the interest elasticity of the demand for investment goods, on the significance of business confidence in determining the marginal efficiency of capital, or on the prospects for important technological improvements in the next decade or two, I think we can regard the Keynesian statement that the national income depends upon the propensity to consume, the marginal efficiency of capital, the liquidity function, and the amount of money as true and useful. That is the final test.

AN APPRAISAL OF KEYNESIAN ECONOMICS

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I

The topic assigned to me is, I am afraid, much too ambitious. I cannot do more than select some questions that seem to me important for an appraisal of Keynesian economics. I shall in part be going over ground I have already tried to explore at some of our earlier meetings and elsewhere, but I do hope to make some further progress.

Keynes's greatest virtue, I have always felt, was his interest in economic policy. Economic theorizing seems to me pointless unless it is aimed at what to do. All the great theorists, I think, have had policy as their central interest, even if their policy was merely laissez faire. If, nevertheless, I have been skeptical of theory, in its traditional form, it is because of its pretension to universality. Economic theory is an exercise in logic, involving abstraction from what the theorist regards as nonessential. Added to the simplifications of selection and emphasis is that involved in the one-thing-at-a-time method of analysis. Our dilemma is, and has always been, that, as Keynes said, without theory we are "lost in the woods." Without hypotheses for testing, we have no basis for economic inquiry. But one can reject with Bagehot what he long ago called the "All-Case" method of the German historical school, while questioning, as he did, the range of validity of what he called the "Single-Case" method of English political economy.[1] This is the kind of question that has chiefly interested me with regard to Keynesian, as well as classical, economics.

As the reference to Bagehot indicates, Keynes was not the first great English critic of classical economics. As a graduate student, nothing interested me more than the writings of the heretics. I found no more penetrating discussion of the relativity of economic concepts than Bagehot's *The Postulates of English Political Economy;* and I returned repeatedly to ponder over Cliffe Leslie's savage outcry against "generalizations . . . which have passed with a certain school of English economists for economic laws . . . generalizations which were once useful and meritorious as first attempts to discover causes and sequence among economic phenomena, but which have long since ceased to afford either light or fruit, and become part of the solemn humbug of 'economic orthodoxy.' "[2] The weakness of such men, from the standpoint of the impression they made on later generations of economists or their own, was that they set up no rival system.[3] By the nature of their objections they could not, and had no interest in trying. The strength of Keynes, again from the standpoint of the impression he has made, stems from the fact that he did set up a rival system, for which, like his classical predecessors, he claimed universal validity. To reduce classical economics to the status of a "special" case under his "general" theory, as he so dramatically did in his single-page first chapter, was to stake out his claim on what he undoubtedly regarded as the highest conceivable level; it probably has no parallel in economic literature. But the questions remain: how valid is his system as a picture of reality, what is the range of its application, how useful is it as a guide to economic policy?

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[1] Walter Bagehot, "The Postulates of English Political Economy," in *The Works of Walter Bagehot* (Hartford, Conn., 1889), Vol. V, pp. 249, 253.

[2] Thomas Edward Cliffe Leslie, "The Movements of Agricultural Wages in Europe," *Essays in Political Economy* (Dublin, 1888), p. 379.

In one of the most interesting essays in *The New Economics,* Arthur Smithies, whom I have always considered a good Keynesian, says that Keynes's theory must be regarded as the beginning rather than the end, and calls upon us to construct a really "general" theory, in which Keynes's theory would be a "special" case.[4] This is welcome evidence —and one could cite much besides in the recent work of men who have been ardent Keynesians—of a willingness to appraise Keynesian economics more critically than was apparent in the first wave of enthusiasm that greeted the appearance of *The General Theory* in the thirties. Perhaps it will help us to get away from the tendency to classify everyone as Keynesian or anti-Keynesian. That never seemed to me a helpful starting point for considering objectively either what Keynes's contribution has been or what its limitations are. I doubt, however, whether "dynamizing" Keynes's static equilibrium analysis, which is what Smithies, Klein, and other mathematical economists seem to have in view, will remove the limitations. To my mind, they are inherent in the nature of equilibrium analysis, especially when applied to income as a whole.[5]

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[3] How they affected my own thinking about international trade theory I tried to show in my old paper, "The Theory of International Trade Reconsidered," *Economic Journal,* June, 1929. Reprinted as Chapter 12 in my book, *Postwar Monetary Plans and Other Essays* (3rd ed., New York, 1947).

[4] "Effective Demand and Employment," in *The New Economics: Keynes' Influence on Theory and Public Policy* (New York, 1947), Ch. XXXIX.

[5] The limitations of mathematical economic theory were never better expressed than by Keynes himself: "It is a great fault of symbolic pseudo-mathematical methods of formalising a system of economic analysis . . . that they expressly assume strict independence between the factors involved and lose all their cogency and authority if this hypothesis is disallowed; whereas, in ordinary discourse, where we are not blindly manipulating but know all the time what we are doing and what the words mean, we can keep 'at the back of our heads' the necessary reserves and qualifications and the adjustments which we shall have to make later on, in a way in which we cannot keep complicated partial differentials 'at the back' of several pages of algebra which assume that they all vanish. Too large a proportion of recent 'mathematical' economics are mere concoctions, as imprecise as the initial assumptions they rest on, which allow the author to lose sight of the

II

Keynes leaves no room for doubt that, in his view, his principle of effective demand revolutionized traditional economic theory. In the preface to *The General Theory* he speaks of "treading along unfamiliar paths," and of his long "struggle of escape." It is clear, too, that he regarded his contribution as monetary. The evolution of his thinking covered the greater part of the interwar period, and the stages in it were marked by the *Tract on Monetary Reform* (1923), the *Treatise on Money* (1930), and *The General Theory* (1936). It is clear all the way through that he was intensely concerned with the problems of his day, and particularly with those of England. In this sense all his books are dated. The first deals with the monetary disturbances of the early twenties, with a large emphasis on international monetary policy; it is dedicated to the "Governors and Court of the Bank of England, who now and for the future have a much more difficult and anxious task than in former days."[6] The second is a monumental work—analytical, statistical, historical—whose central theme is a monetary theory of the business cycle (mainly on closed economy lines) and a policy of control of the cycle by the central bank. There is no evidence as yet of preoccupation with unemployment as a chronic tendency, booms are emphasized quite as much as depressions (nothing interested him more than our stock market boom), underconsumption and oversaving theories are given only passing reference.

In a famous passage of *The General Theory,* every sentence of which has a special revelance for his own theory, Keynes refers to "the completeness of the Ricardian victory" as "due to a complex of suitabilities in the doctrine to the environment into which it was projected."[7] It was, I have always felt, a similar complex of suitabilities that accounted not only for the great impression made by Keynes's theory but also for its origin. It was not a coincidence, or a misinterpretation of Keynes, that the first great development of the theory by his disciples was the stagnation thesis, that the war was regarded as a superlative demonstration of what could be accomplished to sustain employment by a really adequate volume of effective demand, and that the weight of expectation of Keynesian economists was that we would relapse after the war into mass unemployment unless vigorous antideflation measures were pursued. There is no better short statement of the stagnation thesis than that given by Keynes: "The richer the community, the wider will tend to be the gap between its actual and its potential pro-

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complexities and interdependencies of the real world in a maze of pretentious and unhelpful symbols." *The General Theory of Employment, Interest and Money* (London, 1936), pp. 297-298.

[6] Preface, p. vi.

[7] Pp. 32-33.

duction; and therefore the more obvious and outrageous the defects of the economic system. . . . Not only is the marginal propensity to consume weaker in a wealthy community, but, owing to its accumulation of capital being already larger, the opportunities for further investment are less attractive."[8] In an article in the *New Republic* which I have often quoted, Keynes concluded: "It appears to be politically impossible for a capitalistic democracy to organize expenditure on the scale necessary to make the great experiment which would prove my case . . . except in war conditions."[9]

I find it increasingly suggested that we should distinguish between Keynes's "personal opinions" and his "theory." I agree there is often a real point in the distinction between what Keynes says and what his theory says. The book contains many obiter dicta which do not fit into the skeleton of his theory, and indeed provide in some cases valid grounds for objection to it. But it has been my belief that the stagnation thesis constitutes the essential content of the theory, and that as we move away from the circumstances that thesis envisaged, the difficulties for the determinancy of the theory are increased and its force as a formula for economic policy is decreased. I have, however, been skeptical of the stagnation thesis, and some of my reservations about Keynes's theory date back to that phase of the discussion.

III

Keynes's main interest was in monetary theory and policy. The development of his thinking was directed toward "pushing monetary theory back toward becoming a theory of output as a whole."[10] His progress can be traced in the transition from $MV = PT$ to $I + C = Y$. There is the question in each case of distinguishing between the truism and the theory. In the traditional quantity theory (which Keynes endorsed without reservation in the *Tract*),[11] V and T were assumed constant, or independently determined, though in the later writings on the subject this is qualified by such statements as "normally," "except in transition periods," "apart from the business cycle." On these assumptions M affected only P (though some thought the connection often ran the other way), which was a complete demonstration that money was merely a *numéraire* and could be ignored in real analysis.

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[8] P. 31.

[9] July 29, 1940.

[10] *The General Theory*, Preface, p. vi.

[11] P. 81: "This theory is fundamental. Its correspondence with fact is not open to question." But in the accompanying footnote he quotes with approval a statement by Pigou which seems to me to raise rather than settle the essential question: "The Quantity Theory is often defended and opposed as though it were a definite set of propositions that must be either true or false. But in fact the formulae employed in the exposition of that theory are merely devices for enabling us to bring together in an orderly way the principal causes by which the value of money is determined."

The main concern of business cycle theory, whether monetary or non-monetary, has been with fluctuations of income, output, and employment. In this sense, we had half a century and more of "macroeconomics" before *The General Theory* appeared. But there have been formal difficulties with both sides of the quantity equation. In Keynes's *Treatise,* so far as the "fundamental equations" were concerned, the effects of monetary changes were registered exclusively in P. As he later said, the equations "were an instantaneous picture taken on the assumption of a given output."[12] Moreover, as his critics pointed out, they were identities, his excess of investment over saving (via the quantity of money and the interest rate), his windfall profit rise, and his price rise being the same thing, with no causal relationship disclosed, so far as the equations were concerned.[13] There has been difficulty also in the business cycle literature with MV. V has often been treated as a constant (whatever the writer may have said about it in chapters outside his formal theory), or as reinforcing the effects of changes in money quantity. But there is also discussion of demand for money as a factor to be offset by control of the supply, and of the concept of the natural rate of interest as the equator of saving and investment. All these versions, I think, appear in the *Treatise,* though the last undoubtedly interested Keynes most and constitutes a main theme of the book. But the chief emphasis is on business deposits. Regarding income deposits, so crucial for his later theory, his statement in the *Treatise* is: "I incline to the opinion that the short-period fluctuations of V^1 (velocity of income deposits) are inconsiderable," which appears to mean that consumers' demand for money is not a determinant of prices or output (consumers spend what—or in proportion to what—they get), and contains no hint of the later marginal-propensity-to-consume analysis.[14]

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[12] *The General Theory,* Preface, p. vii.

[13] I agree with Lawrence Klein's statement (*The Keynesian Revolution* [New York, 1947], p. 17), though it comes oddly from a mathematician, that there is more to the *Treatise* than the equations. In my own review (*Quarterly Journal of Economics,* August, 1931), I referred only briefly to them, though pointing out their truistic nature, and dealt chiefly with the responsiveness of investment and the price level to the interest rate (which seemed to me the core of the book), his monetary analysis, and my reasons for doubting the effectiveness of his central bank policy.

[14] *Treatise,* Ch. 15, p. 246. It is not possible to find a consistent monetary analysis in the *Treatise.* Sometimes he speaks of business deposits A as interacting with income deposits, as though it were merely the quantity of the former (in response to the central-bank-determined interest rate) that mattered; at other times the main emphasis is on business deposits B (a part of the financial circulation); at other times, and particularly in the statistical and historical chapters, it is on transfers between "cash deposits" and "savings deposits," a part of the analysis that always seemed to me particularly oversimplified and unrealistic; see my review above. In the "bear position" there is some anticipation of liquidity preference, but, as Keynes pointed out, they are by no means the same thing (*The General Theory,* p. 173). For an interesting and suggestive interpretation of the extent to which the *Treatise* foreshadowed *The General Theory* (as Keynes thought it did), see John Lintner, "The Theory of Money and Prices," *The New Economics,* pp. 515-526.

In *The General Theory*, $MV = PT$ is replaced by $I + C = Y$, but one can readily see the old equation underneath. Y is PT. Investment and consumption are the components of income through which monetary changes register their effects. Though not in the equation, the quantity of money (together with "liquidity preference") determines the interest rate, which (in relation to the expected profit rate—"the marginal efficiency of capital") determines the volume of investment. The demand for money is broken down into the three strands that had been implicit in the analysis since Marshall. Velocity becomes the multiplier, command-over-consumption-units becomes the propensity to consume, and the distinction between the decision to save and the decision to invest becomes liquidity preference. The identity equation $I + C = Y$ becomes the causal equation $I + C(Y) = Y$. It is the development of the analysis of demand for money which constitutes, I think, the chief innovation of *The General Theory,* and upon it, and the use Keynes makes of it, mainly turns the answer to the question whether he has succeeded in "pushing back the theory of money to becoming a theory of output as a whole." But a question hardly secondary is what has become in the new theory of P. In the *Treatise,* as I have said, T was constant; in the new theory it is P that has become constant, or neutral.

Having shown the development of Keynes's income equation out of the quantity equation, I must add a brief statement of the theory in his own terms. As he sums it up on page 29, "the essence of *The General Theory*" is that "the volume of employment in equilibrium depends on (i) the aggregate supply function, (ii) the propensity to consume, and (iii) the volume of investment." The supply function is the supply price of total output, measured in unit labor costs, assumed (up to full employment) to be constant or neutral. With the cost-price level thus stabilized, changes in effective demand are registered in output and employment. Of the two components of effective demand, the schedule of the relation of consumption to income is a stable function (which may, however, have a characteristic cyclical pattern) determined by the "psychological law" of the "marginal propensity to consume," which is that as income rises a part of the increment is saved. It follows that for every point on the schedule a multiplier can be computed. With consumption and the multiplier thus given, changes in investment (the "autonomous" factor), together with their multiplied effect, determine changes in the level of output and employment, which may settle at any point (up to full employment as the limiting case) determined by the quantity of effective demand. Thus, the lower the marginal propensity to consume, at a full-employment level of income, the greater will need to be the volume of investment if that level of income and employment is to be maintained. As a society grows richer, its marginal propensity to consume grows "weaker . . . but, owing to its accumulation of capital being already larger, the opportunities for further investment are less attractive." Therefore, the state must intervene, through monetary and fiscal policy, to compensate for the widening "gap between actual and potential production" and maintain a full employment level of effective demand.

IV

I have stated the theory baldly because that, I think, is the only way to get at its logic. After that has been done, the rigor of the assumptions may be relaxed, but this is a process of relaxing also the conclusions, and leads back to the questions I asked earlier about the validity of the theory as a picture of reality and a basis for policy.

The paradox of the book (and one of its chief weaknesses) is that while its central thesis is long run, its formal analysis is short run, not in the business cycle sense (to which Keynes devoted only a chapter of "Notes"), but, as Hicks pointed out, in the sense of Marshall's short-run equilibrium. It is in this sense a special rather than a general theory, and a theory more static than the classical theory it was intended to supplant. Moreover, as has been shown by various writers,[15] some of the more novel features of Keynes's interest and wage theory rest on special assumptions, and are less damaging to classical theory (on the appropriate "level of abstraction") than he supposed. In this sense, too, he falls short of presenting an acceptable general theory.

But much of the formal wage and interest theory seems to me secondary. Keynes's main concern was monetary, and it was the quantity equation, and particularly his long meditation over the Marshallian *K* (plus the impact upon him of the Great Depression), that led him to formulate his income equation and his income theory. Having done so, he worked out the interest theory that seemed to him appropriate, took over such parts of traditional wage theory as seemed to fit and rejected those that seemed not to fit. His great contribution was in focusing attention upon income and in challenging on monetary grounds the assumption, implicit in classical economics, of a full employment level of income automatically sustained. But the important question to ask, I think, is not how much his theory differs in its formal logic from classical economics but how much it differs from business cycle theory, the relation of which to classical equilibrium theory had been becoming increasingly tenuous for at least half a century; and whether in attempting to push the analysis of economic fluctuations back into an abstract framework of equilibrium theory he has done economics a service or a disservice.

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[15] E.g., Schumpeter, Hicks, Lange, Leontief, Tobin, Modigliani.

As I said earlier, the study of economic fluctuations had of course been concerned all along with "macro-economics." But the main emphasis had been placed on fluctuations in investment. To this Keynes adds little that is conceptually new, unless it is the emphasis on expectations, which comes oddly in a book that is otherwise not only static, with constant technique, but very short run. The emphasis on declining investment opportunities, though part of his central thesis, is certainly not new; it had made its appearance in each preceding major depression. As a practical problem it seems remote today, as it has in each previous period of renewed expansion.[16] Yet as a statement of a long-run tendency (wars apart) it has seemed to me not only plausible but desirable that new investment should become a decreasing part of total income in an advancing society, with qualitative technological change taking over more of the role of progress on the side of supply, and the benefits going increasingly to consumption on the side of demand. But Keynes himself did not discuss technology, and in any case the real seat of his pessimism and the core of his theory lie in his views about consumption. It is here, too, that his theory differs fundamentally from business cycle theory.

V

Keynes's law of the propensity to consume is the important novel feature of his theory. It has been also the most controversial. It was the main question raised by my paper on "Deficit Spending" at our meeting in 1940,[17] by Kuznets' review of Hansen's *Fiscal Policy and Business Cycles* in 1942,[18] and (along with his attack on equilibrium economics generally) by Burns's recent papers on Keynesian economics.[19]

As a first statement, apart from the business cycle or other special circumstances, Keynes's "law" that as income rises consumption rises by less than unity is a plausible hypothesis; but it does not mean, necessarily, that consumption is the "passive" factor or that the consumption function is stable. These two assumptions—(1) that consumption is dependent on income and (2) that there is a "regular" or "stable" or "normal" relation between them, such that the consumption function can be derived as a given datum of the system and used as a basis of policy and prediction—constitute the essence of Keynesian economics. They bear a striking resemblance to the basic assumption of the quantity theory, that demand for money could be treated as a given factor, with the difference that, whereas that assumption was used to support the classical conclusion of full-employment equilibrium (apart from the business cycle), the new law of demand for money becomes the basis of the new equilibrium theory in which full employment is merely the limiting case. The whole structure rests upon the validity of the new law of the demand for money.

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[16] The reader is doubtless familiar with the literature of the controversy over declining opportunities for investment. In addition to the references elsewhere in the paper, I should mention (among others) Terborgh, *The Bogey of Economic Maturity* (Chicago, 1945), and Wright, "The Future of Keynesian Economics," *American Economic Review*, June, 1945, and "'The Great Guessing Game': Terborgh versus Hansen," *Review of Economic Statistics*, February, 1946.

[17] *American Economic Review*, February, 1941; see my *Postwar Monetary Plans, op. cit.*, Ch. 9.

[18] *Review of Economic Statistics*, February, 1942, pp. 31-36.

[19] Arthur F. Burns, *Economic Research and the Keynesian Thinking of Our Times* (New York, 1946), and also his paper on "Keynesian Economics Once Again," *Review of Economic Statistics*, November, 1947, pp. 252-267.

Historically, there seem to me to be ample grounds for doubting both the assumptions I have stated. They do not, for example, account for the effect of the rise of the automobile, a consumption good—or of new products generally—upon the growth of national income, where we have had a dynamic response of consumption and investment, each to the other. The application of an investment "multiplier" to consumption as a passive, given factor in order to account for such changes seems wholly unrealistic. Nor would, I think, any "dynamizing" of Keynes's technique by mathematical methods get us much further. Keynes's proposition that autonomous changes in investment determine changes in income, and hence in consumption (according to the "law"), is probably no better than its opposite, that spontaneous changes in consumption determine changes in income, and in investment. The *interdependence* of consumption and investment, each responding to the other—and both responding (spontaneously rather than systematically) to changing ideas, methods, resources—seems to me to be the essence of economic progress. But it does not lend itself readily to equilibrium analysis, which is probably the reason why it has been the concern of the historians and the more imaginative kind of statisticians rather than of the pure theorists. As between Keynesian and classical economics, however, the latter provides, in many respects, a more realistic point of departure for a study of progress.

The rise of consumer durable goods has been the outstanding economic phenomenon of our times. From the standpoint both of long-run growth and of business cycle behavior it raises serious questions for Keynesian analysis. Between the two wars expenditures on such goods were fully as large as those on capital goods, and their fluctuations fully as great; nor can we make any clear generalization as to which played the greater role in initiating cyclical changes. As "outlets for saving" they played as large a role, and the same kind of role, as new investment; nor is there any more reason for applying a "multiplier" to the one kind of expenditure than to the other. They make the Keynesian statements about "oversaving," or "institutional factors which retard the growth of consumption," or consumption as the "passive" factor, seem much less realistic than they might otherwise.

Historically, however, the growth of consumer durable goods accounts only in part for the rise in real consumption. Kuznets' paper on "Capital Formation, 1879-1938," at the University of Pennsylvania Bicentennial Conference constitutes an important landmark in the modification of Keynesian theory.[20] He demonstrated that, while national income rose greatly during that period, standards of living rose correspondingly, and the great bulk of the increase in income went into consumption. Saving, as measured by real investment, remained a constant fraction of income, with an apparent moderate tendency in the twenties (on which he does not insist) for consumption to increase relative to income.[21] In England before the war, according to Colin Clark's data, saving had been a diminishing fraction of a growing national income for at least a generation.[22] Since Kuznets' paper, the "secular upward drift" of the consumption function, to which no reference is made in Keynes,[23] has become a standard part of the statement of the consumption function. Its practical effect has been to bring the plane of discussion (the possible "gap between actual and potential production") back pretty much to where it had been before Keynes wrote, by disposing of the more serious version of his law and the one which I think he himself believed—that consumption, as a society grew richer, became a diminishing fraction of income—and limiting the stagnation thesis to a discussion of declining opportunities for investment.

But while the "secular upward drift" is now regularly included in consumption function formulae, its implications for the analysis have not been sufficiently examined. One thing it means, I think, is the point mentioned earlier, the dynamic interaction of consumption and invest-

[20] *Studies in Economics and Industrial Relations* (Philadelphia, 1941), pp. 53-78.

[21] Had residential housing been counted as consumption rather than investment, the upward tendency of consumption would have been more marked.

[22] His figures on net investment as a percentage of national income show a decline from 12.2 per cent in 1907 to 8.1 per cent in 1924, 7.2 per cent in 1929, and 6.9 per cent in 1935. His conclusion was: "I believe the facts have destroyed the view up till now generally prevalent, that the rate of economic growth was primarily dependent upon the rate at which capital could be accumulated. The very rapid expansion at the present time [before the war] is taking place at a time of heavily diminishing capital accumulation. What is more remarkable, practically none of the capital which is being saved is being put into productive industry proper." *National Income and Outlay* (New York, 1938), p. 270.

[23] Hansen's *Fiscal Policy and Business Cycles* (New York, 1941), Ch. 11, p. 233, contains, so far as I know, his first reference to it. It is accompanied by a footnote referring to Kuznets' forthcoming data (the paper mentioned above); they were both present at the Pennsylvania Conference.

ment. No application of the growth of investment and a multiplier to the consumption existing at the beginning of Kuznets' period, on the assumption of passivity (in the way that was so commonly being done in the thirties) could ever account for the income-consumption relation at the end; and if instead we take a historical regression of the previous relation and project it forward, we are merely begging the question.

Another part of the explanation, without doubt, has been the cost reducing function of investment, with which, because it is too short run, Keynes's analysis does not deal. As I tried to show in an earlier paper, investment is significant, not primarily because of the money income and the employment provided by the capital-goods industries themselves, but because of the fact that by producing consumer goods in more efficient, and therefore cheaper, ways it releases consumer income for expenditure on other goods and services, and by increasing productivity per worker makes possible upward adjustments of income and increased voluntary leisure. This has been the heart of the productive process under the free-enterprise system. It points to the importance of price-wage-profits relationships which in the Keynesian system become submerged, and to the inadequacies in these directions of the Keynesian monetary and fiscal policies as the means of sustaining full employment in an advancing society.[24]

VI

Since the war Keynesian economics has undergone a number of significant shifts. Faced with a condition of inflation as alarming, and seemingly as intractable, as the deflation Keynes faced when he wrote his book, the stagnation thesis has receded into the background of the theory. This is mainly what is meant by distinguishing between Keynes's opinions and his theory. But, as I said earlier, the difficulties for the determinacy of the theory have been increased by the new conditions, and its applicability to policy has become less clear cut. One of the new questions is the relative importance of monetary and fiscal policies—control over the broad aggregates of the income equation—as against more specific (including direct control) policies. Is Beveridge's program for full employment,[25] and that of the six Oxford economists,[26] a logical following out of Keynesian theory (as they assume) or a contradiction of it? Keynes did not favor a planned or regimented economy (except in war), and regarded his theory as a defense against it. Another important set of questions relates to the cost-price effects of monetary expansion, which seemed secondary in deep depression when there were large unemployed resources. Another relates to the longer-run relations of costs, prices, profits, productivity which Keynes's analysis ignores, but which seem to me more important for stability and progress than the short-run monetary factors which his theory selects for emphasis.

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[24] "Free Enterprise and Full Employment," in *Financing American Prosperity* (New York: Twentieth Century Fund, 1945), pp. 360-373; see also William Fellner, "The Technological Argument of the Stagnation Thesis," *Quarterly Journal of Economics*, August, 1941; and E. D. Domar, "The Prospect for Economic Growth," *American Economic Review*, March, 1947. This is a point I have emphasized in virtually all my papers on Keynesian economics since my review of the *Treatise, op. cit.*, pp. 554-555.

[25] Lord Beveridge, *Full Employment in a Free Society* (London, 1944).

[26] *The Economics of Full Employment* (Oxford: Oxford Institute of Statistics, 1944).

Most interesting has been the postwar development of the consumption function. Keynes's book, despite his distrust of mathematics, has undoubtedly given a great impetus to the study of econometrics, and the consumption function in particular has given the mathematicians, whether Keynesian or non-Keynesian, an ideal concept for building models of national income and making forecasts. Thus far, the forecasts have been almost uniformly bad. Though I am quite incompetent to judge, my suspicion has been that the explanation is twofold: first, the stagnation bias carried over from prewar Keynesian economics; second, the fact that in the depressed thirties the income-consumption relation (as well as investment) was abnormally low, reflecting consumers' insecurity and pessimistic expectations. In any event, it does seem significant that the chief error made in the forecasts has not been in the estimates of postwar investment but in the consumption function, the one element theoretically derivable from within the Keynesian system.

After the appearance of the "secular upward drift," the emphasis was on the assumed short-run stability of the consumption function. But postwar experience has cast doubt also on this. It seems now to be agreed among econometricians that the "simple relation" between income and consumption, as Keynes stated it, is unstable. In searching for a more complex relation which may have some promise of greater stability, hypotheses have been introduced which contradict Keynes's own theory. For example, liquidity is now commonly accepted as a factor affecting consumption, whereas in Keynes's theory liquidity affected only investment. Such a change strikes at Keynes's whole structure of demand for money, with its elaborately worked out separation into the three distinct strands I discussed earlier. Instead of the simple relation between current income and current consumption on which Keynes built his theory, we are today working with various hypotheses, including saving out of past income, liquid assets, capital gains, the last highest income reached in a boom, expectations of future income, and other possible factors affecting the income-consumption relation. That expectation should be brought in to explain consumption, whereas with Keynes it affected only investment, is surely a major departure. But it seems unnecessary, and even misleading, to pick out any particular points of difference. The broad fact seems to me to be that we have nothing left of this basic concept of the Keynesian theory other than that consumption is an important component of income and deserves all the study we can give it. The same is of course true of investment, the other component of income. That this is not now being studied with equal intensity by the econometricians is doubtless due to the fact that the changes in it are not derivable from within the system and do not lend themselves as readily to mathematical manipulation.[27]

Scarcely less significant among the postwar developments is the growing recognition of Keynes's underemphasis on the price aspect of monetary changes. As I said earlier, in deep depression this could be ignored, but the practical problem that confronts us, except in that unique condition, is that a volume of effective demand that is adequate for full employment appears to have cost-price effects which not only expand money income at the expense of real income but create a highly unstable economic situation. In other words, Keynes's stable equilibrium (even if we could concede it on other grounds) would seem not to include full employment as the limiting case, but something substantially short of that. This seems to me our most serious practical dilemma. It has both short- and long-run aspects. It presents a question whether we have to make a choice between allowing for a certain amount of slack (and fluctuation) in our use of resources, in a free-market system, or, if we insist on continuous full employment, recognizing the need for more specific controls. But this leads on to the question, not only of our scheme of values (political and social as well as economic), but also of the vitality of the system, whether in a more planned and controlled system we would not weaken the dynamic forces which promote growth and which might, with further study, be directed toward the achievement, not of stable equilibrium in any exact sense, but of a less unstable economy than we have had hitherto. Much, I think, could be accomplished through the further study of price-wage-profit practices and policies. As I said in an earlier paper, though these relations have long been a main concern of (classical) economic theory they have been overlaid in recent years by preoccupation with monetary and fiscal analysis, and the tendency has been to regard price-cost behavior as a kind of *force majeure* to be "offset" rather than corrected. It is surprising how little we know, and can agree upon, with regard to these relationships, and what course to steer in order to avoid merely (a) letting them take their course, (b) compensating for them by monetary and fiscal manipulation, or (c) subjecting them to direct control.[28]

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[27] Lawrence Klein has recognized that for a true equilibrium system both investment and consumption should be determinable from within the system, see "A Post-Mortem on Transition Predictions of National Product," *Journal of Political Economy,* August, 1946, pp. 302-303. He lists the relations we must know before we can make good forecasts: "A principal failure of the customary models is that they are not sufficiently detailed. There are too many variables which are classified as autonomous when they are actually induced. . . . The surplus of autonomous variables results from a failure to discover all the appropriate relationships constituting the system. In addition to the consumption function, we should have the investment function, the inventory function, the housing function, the price-formation equations, etc." In *Econometrica,* April, 1947, he made his own forecast for the fiscal year 1947, and said that if he were wrong the reason would probably be his failure to take account of the further rise of prices. (Why should not prices be predictable from within the system?) The actual price level was not significantly different from the one he chose to use; his estimate of investment was too high (though not seriously); but his forecast of national product was too low because he underestimated the consumption function.

Chapter 21, on "The Theory of Prices," is for me one of the high spots of *The General Theory*. One of Keynes's characteristics was that while he was as sharp as anyone could wish in seeing possible qualifications and objections to his theory, he never permitted them to interfere with his conclusions. Chapter 21 (in which occurs the passage on mathematical economics) is an excellent discussion of the reasons why before full employment is reached, monetary expansion affects prices and costs as well as output and employment. It is interesting that the chapter runs in terms of the quantity theory of money, which suggests again that his own theory is a recast version of the quantity theory.

> If there is perfectly elastic supply so long as there is unemployment, and perfectly inelastic supply so soon as full employment is reached, and if effective demand changes in the same proportion as the quantity of money, the quantity theory of money can be enunciated as follows: "So long as there is unemployment, *employment* will change in the same proportion as the quantity of money; and when there is full employment, *prices* will change in the same proportion as the quantity of money."[29]

Inserting Keynes's new concept of demand for money, this is not a bad statement of his own theory. But he goes on to introduce five qualifications: effective demand will not change in exact proportion to the quantity of money; resources are not (a) homogeneous, and (b) interchangeable, so that their supply elasticities vary; the money wage-unit will tend to rise before full employment; the remuneration of the factors entering into marginal cost will not all change in the same proportion. I cannot reproduce the discussion here. It contains references to bottlenecks, collective bargaining, boom and depression psychology, and other factors. One would need nothing more than this chapter to explain not only the kind of dilemma that confronts us today, but the inflationary conditions of 1936-37 on a comparatively low level of employment.[30] But so far as I can see, Keynes does nothing to resolve the dilemma, and this chapter has no place in either the logic of his theory or his policy prescription. It is on a par with similar qualifications of his fundamental equations in the *Treatise,* which he said did not "affect in any way the rigor or validity of our conclusions."[31] In distinguishing between what Keynes says and what his theory says, it is this kind of difference that seems to me significant. I can offer no explanation of it except that it is what equilibrium analysis seems to do to us. The key, I think, lies in what Keynes says about the rise of money wage rates before full employment (he might equally have said it of any of the other qualifications): "They have . . . a good deal of historical importance. But they do not readily lend themselves to theoretical generalizations."[32]

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[28] See my statement on "The Employment Act of 1946" before the Joint Congressional Committee on the President's Economic Report, July 2, 1947, reprinted in my book, *Post-war Monetary Plans, op. cit.*, Appendix I, p. 240.

[29] Pp. 295-296.

VII

I am afraid I am outrunning the space assigned to me, but some other topics must be briefly mentioned. Keynes's claim to having put monetary analysis into real terms depends largely on his assumption of constant prices; price and wage changes would affect the consumption function, liquidity preference, and investment. He overstated his point (with which I have long sympathized) that the interest rate does not determine saving. He was wrong in saying that investment does not affect the interest rate but is only affected by it, though we had a striking demonstration during the war of how far an easy money policy can go in freezing the rate at a low level. His point that there is a minimum rate below which liquidity preference will not permit the rate to be driven is valid but needs elaboration. So far as the time risk is concerned, our experience with a frozen pattern of rates demonstrated that rates on long-term governments would fall progressively toward the shortest. But so far as the income risk is concerned, an easy money policy widens the gaps in the interest-rate structure and suggests the need of other methods of attack. An all-out easy money policy, such as some Keynesians have favored, designed to saturate liquidity preference, carries both short-run inflationary dangers (as we are now recognizing) and longer-run dangers of undermining the whole fabric of the private capitalistic economy.[33]

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[30] One of the peculiarities of an inflationary volume of effective demand is, apparently, that the slope of the consumption function is no longer necessarily less than unity. For a discussion of this and other aspects of the behavior of the consumption function under war and postwar conditions, see a forthcoming paper, "Use of the Consumption Function in Economic Forecasting," by Robert V. Rosa.

[31] See my review, *op. cit.*, pp. 556-558.

[32] *The General Theory,* p. 302.

[33] In my last talk with Keynes, a few months before his death, it was clear that he had got far away from his "euthanasia of the rentier." He complained that the easy money policy was being pushed too far, both in England and here, and emphasized interest as an

Keynes's emphasis on wages as income and on the downward rigidity of money wage rates and his insistence that unemployment could not be cured by a policy directed primarily at cutting wage rates are among his most important contributions from a practical standpoint, whatever their theoretical merits on some abstract level. But as related to monetary business cycle analysis they have always seemed to me less novel than he supposed. Monetary policy had not run primarily in terms of wage cuts but in terms of compensating for wage and price rigidities. His conclusion, moreover, is subject to two large reservations: the effect of cost reduction on investment and its effect (which he recognized) on foreign trade. Moreover, from a purely economic standpoint, there is no reason why cost-reduction policies should not be combined with monetary policies of expansion, as Sweden and Australia did with notable success in the Great Depression.

One of the points most commonly agreed upon, even by Keynesians, is that the aggregates of the income equation must be broken down. A point that has especially interested me is the need of breaking down the saving function to differentiate between business and consumers' saving. I have never understood how Samuelson's findings could be offered in verification either of Keynes's propensity to consume or of Hansen's chapter to which they are appended. His analysis yielded the striking conclusion that consumers in the aggregate spent virtually all their increases in money income and that any additional saving accompanying rising income almost wholly took the form of business saving.[34] The implications of such a conclusion for economic policy are of course very great.

Finally, there is the now familiar point that the Keynesian saving-investment concept (like so much else in the analysis) has tended to submerge the study of the *process* of economic change. We have again,

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element of income, and its basic importance in the structure and functioning of private capitalism. He was amused by my remark that it was time to write another book because the all-out easy money policy was being preached in his name, and replied that he did think he ought to keep one jump ahead.

How greatly Keynesian fiscal policy (and war finance) have complicated the problem of varying the interest rate as an instrument of cyclical control (because of the public debt), we are only now beginning to recognize fully.

For a discussion of these and other aspects of the interest-rate problem, see my paper, "Implications of Fiscal Policy for Monetary Policy and the Banking System," *American Economic Review*, March Sup., 1942, reprinted as Ch. 10 in my book, *Postwar Monetary Plans, op. cit.;* see also H. C. Wallich, "The Changing Significance of the Interest Rate," *American Economic Review*, December, 1946.

[34] See Alvin H. Hansen, *Fiscal Policy and Business Cycles, op. cit.*, Ch. 11, Appendix, pp. 250-260, by Paul A. Samuelson.

Samuelson's analysis is based on Kuznets' data (1919-35). For consumers he finds a marginal propensity to consume of 0.97, and for business enterprises a marginal propensity to save of 0.49. "This [business saving] accounts for most of the leakages incident upon net investment: as far as these data go, the leakages incident upon household savings are much smaller and possibly negative" (p. 257). In his conclusion (p. 260) he again emphasizes "the very sensitive relation of consumption to aggregate income payments."

as in the *Treatise,* "instantaneous pictures." How saving and investment must always be equal in real terms, and yet how sometimes the equality denotes equilibrium and sometimes it does not, has caused endless confusion. We can make some headway by differentiating between a "normal" income-saving relation and a process of adjustment to the normal relation. But Keynes does not discuss process, and "normal" saving begs the questions I raised earlier. For a study of change the Swedish *ex ante, ex post,* or Robertson's time-period analysis seems much more realistic.[35]

VIII

As I look back over my paper, my appraisal of Keynesian economics seems to be mostly critical. The most difficult thing to appraise is one's own bias. No doubt my appraisal has in it some element of unfavorable reaction, both to Keynes's own showmanship and his tendency to oversimplify and overstate his case, and to the sheer mass and exuberance of the claims made by his followers in his behalf. I admit all this has been working on me for a long time. Economic instability is equaled only by the instability of economists; what we need most, and often seem to have little of, is perspective. While I have no fondness for prediction, I do believe that the wave of enthusiasm for the "new economics" will, in the longer perspective, seem to us extravagant. And perhaps it will be only then that we shall be able to appraise objectively Keynes's contribution.

Beyond question it was very great. No one in our time has shaken up economists as much or been as influential in bringing economic analysis to bear on public policy. What he has given us, in particular, is a much stronger sense than we had before of the need for consumption analysis. It was the combination of the man and the times that did it. But I do have to insist again that it was policy, in Keynes's case, that led to theory, and that the weakness (as well as the strength of the impression made) lies in the overgeneralization. What we shall probably find ourselves doing is bringing back the things he temporarily submerged, the study of the processes of short- and long-run change, the emphasis on productivity, and on price-cost-profit relationships. If the conditions to which his theory was mainly directed should reappear, we shall probably find ourselves swept far beyond the kinds of remedies he favored, and forced into things he thought his theory and policies would avoid. But if we can maintain reasonable stability and, by the study of forces and relationships he largely ignored, continue to promote growth, his policies should play an effective role in a more rounded economic policy. I have sympathized all along with the idea of a cyclically unbalanced budget and with tax policies designed to promote stability and growth. But these, for Keynesians, at least before the war, were relatively mild objectives. Moreover, these are not exclusively Keynesian policies, but have been quite as popular with economists in Sweden, for example (where Keynesian economics has never really taken hold), as anywhere else.

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[35] See, among recent discussions of this point, David M. Wright, *The Economics of Disturbance* (New York, 1947), Ch. II.

What I find increasingly said, as the stagnation thesis recedes into the background, and the postwar questions about the consumption function, the price effects, and the like cast further doubts upon the theory as Keynes stated it, is that (and here the analogy with the quantity equation is striking) he has arranged the elements affecting the income equation in a useful form. This, I think, is true, with all the qualifications I have made. Undoubtedly, his formulation has greatly intensified the study of national income and its composition, though it is interesting that, as I indicated earlier, men like Kuznets and Colin Clark, who have pioneered such studies, dissented from his theory.

What it comes down to is that Keynes's analysis would appeal to me more if he had not claimed too much for it. As with his predecessors, it is the pretension to universality, and the equilibrium technique, that offend me, with the further point that in his case the defect seems to me worse. There is a legitimate and important role in economics for partial equilibrium analysis but the analogy with it of the Keynesian type of total equilibrium analysis seems to me most imperfect, because in the nature of the case the "other things equal" condition is invalid. Consumption, investment, total income interact, and they comprise all the "other things." Until, at least, the econometricians make more headway in deriving them (and their parts) from "within the system," this will be the nature of my skepticism.

DISCUSSION

LESTER V. CHANDLER: Not having had a chance to see Professor Williams' paper I shall comment only on the paper by Professor Tarshis.

I was much heartened by the general tone and content of Professor Tarshis' remarks, the more so because of their contrast with the arguments that we have so frequently heard from Keynesians, especially during the early days of Keynesianism. On far too many occasions, Keynesians have denied the validity and usefulness of almost all neoclassical theory, have claimed for Keynes an excessive degree of originality for the ideas advanced in his *General Theory,* have been too reluctant to accept corrections or supplements to his theories, and have been prone to believe that Keynes's ideas, without further analysis or empirical research, offer an adequate basis for public economic policy. Professor Tarshis has done none of these things. He has emphasized the extent to which Keynes leaned upon and borrowed from neoclassical theory—not always to the benefit of his own theories; he has noted, at least by implication, the advances in the theory of national income that occurred before the appearance of *The General Theory;* he has indicated a willingness to divorce Keynes's basic theoretical formulations from some of Keynes's own speculations concerning the future of Western economic systems; and he has emphasized that the basic Keynesian theory, though simple and valid, is but a theoretical skeleton which must be filled out with much more analysis and empirical study before it can offer a full explanation of the behavior of national income and employment and before it can serve as an adequate guide to public policy. It seems to me that Professor Tarshis' evolutionary and open-minded approach offers hope for a future integration of neoclassical and Keynesian ideas, to their mutual advantage. It also forecasts an increased usefulness of economic theory as a guide to public policy.

This does not mean, of course, that Keynes's contributions were or are unimportant. Though Keynes should not have claimed originality for many of the individual elements of his theoretical structure, the broad framework itself is a major contribution to economics. The same is probably true of Adam Smith, and of Chamberlin and Robinson who made such important contributions to the other major theme of this convention—the theory of monopolistic and imperfect competition. The implications of Keynesian theory for public economic policy are enormous. Even if we divorce Keynesian theory from Keynes's pessimistic views as to the future of private demands for investable funds—and I agree with Professor Tarshis that the two should be separated—we cannot accept Keynesian theory and still confidently assume that private investment will always be just sufficient to offset savings out of full employment incomes. His discussion of the motives behind saving and behind investment, though incomplete, should have made this clear.

The present period of inflation in no way refutes the basic Keynesian theories as presented today by Professor Tarshis. In the first place, the present situation can itself be explained in Keynesian terms. Keynes did not feel it necessary to reject his own theories in the face of war and early postwar inflation. The present inflation can be used to cast doubts on Keynes's basic theories only by improperly identifying them with an extreme and incautious form of stagnationism. In the second place, we are by no means assured that the present high level of private investment will continue indefinitely. Even the most ardent stagnationists have not claimed that full employment will never be attained; instead, they have indicated merely that on the average unemployment will be higher in the future. We must remember that at the end of the war housing had been in the doldrums for more than fifteen years, that private investment in commercial construction and producers durable goods had been far from satisfactory since 1929, that consumer durables had been unavailable for about three years, and that inventories were at a low level. With these conditions, plus monetary and fiscal policies that assure very low interest rates, the current inflation is certainly understandable, but we cannot be sure that private investment will continue to be even adequate into the indefinite future. Keynesian theory shows its usefulness in dealing with both types of situations—a high rate of investment relative to the propensity to save as well as a low rate of investment relative to the propensity to save.

This brings us to another of the points made by Professor Tarshis: that the basic Keynesian theory—with its emphasis on the aggregate supply function, the consumption function, the complex of factors which he calls the marginal efficiency of capital, the liquidity function, and the amount of money—is only a skeleton or framework of analysis. It calls our attention to strategic relationships, but it does not supply all the factual, or even all the theoretical, material necessary to make the theory into a complete description of the behavior of income and employment. We know far too little about the key functions in the Keynesian theory—the actual determinants of aggregate supply function, the consumption function, the determinants of enterprisers' expectations as to the prospective yield of new investment, and the behavior of the supply schedule of investible funds in the market. Keynesian theory emphasizes the crucial importance of these functions, but it does not at the present time offer an adequate explanation of their actual behavior, much less provide us with a ready-made formula for securing optimum relationships among them.

For example, what are the effects of the various kinds of monopoly and monopolistic practices on the rate and stability of private investment as well as on the propensity to consume? What are the broad effects of the various industrial price policies? What influences are exerted by the various provisions of tax laws on the consumption function, on enterprisers' estimates of the marginal efficiency of capital, and on the liquidity function? When we face questions like these we realize that the framework of the Keynesian theory has not yet been filled in completely, and that in many respects Keynesian and neoclassical economics are not mutually contradictory; instead, they supplement and give meaning to each other. Professor Tarshis has told us that "Keynesians do not all have to prescribe the same medicine." I agree. But I also suspect that we should not prescribe just one medicine. Rather, we should put ourselves in a position to offer many specific remedies to correct the many specific ills that contribute to the instability of national income and employment. We cannot do this until we have accepted Professor Tarshis' invitation to fill in the Keynesian analytical framework with much material from other schools of economic thought and with further studies and research.

CLARK WARBURTON: Professor Tarshis and Professor Williams have made many interesting observations on Keynesian theory with which I am in agreement. The comments which I shall make relate to Professor Tarshis' closing statement; namely, that the final test of Keynesian theory is the truthfulness and usefulness of the statement: the national income depends upon the propensity to consume, the marginal efficiency of capital, the liquidity function, and the amount of money.

This statement lists four variables upon which national income depends. Earlier in his paper Professor Tarshis summarized the Keynesian theory in the statement that "the national income depends upon the propensity to consume and investment." If these two statements are placed in juxtaposition, they appear to mean that investment depends on the three variables—marginal efficiency of capital, liquidity preference, and amount of money—but that the propensity to consume may be treated as relatively independent of each of these variables. Is this correct? Do changes in the quantity of money or in the preference for liquidity influence consumption expenditures only as a result of changes in national income resulting from a change in investment? Or is it equally true that changes in the quantity of money and in the desire to hold it affect consumption expenditures directly, with resulting effects on the prospect for profit and therefore on investment? And if the latter is equally true, may it not be more important than the former because consumption is a much larger fraction than investment of national income?

One of the variables assumed to influence investment—the marginal efficiency of capital—is an effective stimulant in the form of a differential between the rate of interest and the prospective rate of profit in a business undertaking. Changes in this differential undoubtedly influence the amount of investment, but the Keynesian analysis gives little consideration to the forces at work underneath changes in this differential. On this point pre-Keynesian theory is more explicit, assuming that the differential depends upon the intensity of demand for consumers goods (i.e., income and the propensity to consume); on changes in prices of output relative to prices entering into costs, especially wages; and on changes in the rate of interest other than those induced by change in the prospective rate of profit. Furthermore, according to pre-Keynesian theory, the latter two conditions—changes in prices of output relative to wages and deviations in the rate of interest from the "natural" rate—are in practice sequential results of changes in the quantity of money other than those in accord with trends in productive capacity and habits of use of money. Keynesian economics, so far as I am aware, does not contradict the validity of these propositions. They are simply ignored in *The General Theory* and in the subsequent theoretical developments based thereon. We are not, I think, doing violence to the Keynesian way of thinking, but amplifying it, to reintroduce them. But when we do, the marginal efficiency of capital appears to be a redundant variable, for we may substitute other variables already in the equation. This leaves us with the formulation: national income depends on the propensity to consume, liquidity preference, and the amount of money.

The propensity to consume, or consumption function, is commonly measured by Keynesian economists as a relation between aggregate consumption expenditures and aggregate disposable personal income. When we examine this relationship over a period of years, we find that the propensity to consume is a little higher in times of depression than in times of full employment, excluding war periods; that is, the propensity to consume moves inversely, though mildly, with departures in national income from the upward secular trend associated with a growing population and advancing techniques of production. It is the cause of such departures—particularly in the cases of prolonged lapses from full employment—upon which *The General Theory* is focused. To me it does not seem helpful, when stating the factors causing a slump in national income, to include a factor operating to mitigate, just a little, that slump. We can, then, omit this factor when we apply the Keynesian theory to the practical problem of changes in national income associated with periods of unemployment. We are left with the formulation: national income depends on liquidity preference and the amount of money.

This formulation is not a modification of Keynes's theory. Except for formal details, it is his own formulation in Chapter 15 of *The General Theory*. Let us rewrite the liquidity function, as stated by Keynes, to conform with his assumptions regarding (a) the direction of casual relationships in time, (b) the constancy of income-velocity, except for long periods, with respect to a portion of the monetary stock, and (c) the zero income-velocity of a variable portion of the quantity of money held for speculative purposes. We obtain $Y = vM$, meaning that national income is a function of liquidity preference and the quantity of money—with liquidity preference in the form of its effect on income velocity (i.e., as the reciprocal of holdings of cash balances relative to income).

This formulation of the functional relation between national income and selected variables is a form of the old equation of exchange applied to sales of the final output of the economy, and states the basic thesis of the dominant strain in pre-Keynesian business fluctuation theory; namely, that the value of output is a function of the quantity of money and of its velocity in transactions related to output.

The agreement between pre-Keynesian and Keynesian theory on this formulation is important, not because it means that Keynesian theory of the cause of departure from full employment is essentially the same as pre-Keynesian theory, which is not the case, but because it enables us to locate the difference between the two theories in such a way that they can be tested for their consistency with factual data. This difference resides in the assumptions regarding the interrelations of v and M. In Keynesian theory, changes in circuit velocity of money are positively correlated with changes in the rate of interest, and changes in the rate of interest are negatively correlated with changes in the quantity of money. This means that changes in circuit velocity are negatively correlated with changes in the quantity of money, that is,

v and M are compensatory, with additional supplies of money becoming "idle" money. This contrasts directly with pre-Keynesian theory, according to which monetary expansion in excess of a normal rate of growth is accompanied, with some lag, by higher monetary velocity, and monetary contraction by hesitancy in the use of money; that is, changes in v were regarded by pre-Keynesian economists as a force accentuating rather than compensating the effects of changes in M.

At the Federal Deposit Insurance Corporation we have been engaged for several years in analyzing the conditions precedent to business depression, with emphasis on severe cases like the thirties. The burdens of the Corporation and its solvency both depend upon the frequency and severity of future depressions. We are therefore vitally interested in the theory of lapses from full employment and in proposals designed to maintain full employment, and have assembled and examined with considerable care the factual data regarding the timing and interrelations of changes in the quantity and circuit velocity of money. Our study has covered the period since 1918. The facts, we find, are in conformity with pre-Keynesian theory. The liquidity preference phase of Keynesian theory is not in accord with the facts, and appears to be irreconcilable with them.

MELVIN W. REDER: After reading Professor Tarshis' interesting and useful exposition of Keynesian economics, it is difficult to understand why there were ever any anti-Keynesians. But by the same token, it is hard to understand why *The General Theory* was such a controversial and important book. The main reason for this difficulty is, I think, that Tarshis has given a rather overgenerous description of neoclassical theory.

Actually, prior to *The General Theory*, there was no coherent theory of the level of (national) income and employment in existence. Certainly, the writings of Marshall, Pigou, Robertson *et al.* abounded in references to the national dividend or income, but they hardly ever regarded it as an unknown to be determined by the equilibrium conditions of the system. They regarded it as a parameter (entering into various supply and demand functions) which had the following properties: it increased with (1) technical progress, (2) population, and (3) the stock of capital; it also served as an indicator of welfare. That it was not treated as a variable to be determined explicitly by the equilibrium conditions of the system was not an oversight; implicitly it was already determined. It could be found (roughly) by multiplying the equilibrium quantities of the various outputs by their equilibrium prices and summing the resulting products. The level of national income could thus be derived from the equilibrium conditions of the system; but it was not, itself, an unknown.

To develop a theory of the level of income and employment (in static terms) it is necessary to suppose that the system might be in equilibrium with various levels of employment of resources; particularly of labor. Neoclassical economists failed to make this supposition and consequently they were prevented from developing a static theory of employment. For the neoclassical economist, if laborers were unemployed but wished to work at the going wage rate, it meant that the wage rate was above the equilibrium level and that the unemployment could be eliminated by a reduction in the (money) wage rate. Thus, given the usual assumptions of neoclassical theory, the level of employment in equilibrium had to be the "full employment" level.

Now it is, of course, true that in their writings on the business cycle Pigou, Robertson, and others spoke (at least by implication) of changes in the level of national income and employment, and Pigou even argued that if a fall in wage rates leads to expectations of further declines, employment would decrease rather than increase. But these "dynamic" arguments were not integrated with the main body of static theory.

Keynes, in developing a theory of employment, had at least several choices. He could have accepted the neoclassical position that involuntary unemployment was incompatible with stable equilibrium, but argued that either the system did not tend to a position of stable equilibrium or that, even if it did, the position kept shifting through time and that it was the process toward the position (and not the position itself) that was interesting. To have proceeded in this fashion would not have involved contradicting the conclusions (or modifying the assumptions) of neoclassical theory; but it would have involved (1) denying that the conclusions of static theory in this area were important and (2) asserting that a dynamic theory was required. However, as Professor Tarshis' remarks would suggest, Keynes was too much of a Cambridge economist to accept this alternative.

Instead, he chose to pour his wine into Marshallian bottles. He confined himself to static theory, but determined to modify its assumptions in such a way that underemployment equilibria were possible. To accomplish this result, he made a tour de force that has generally been considered quite unsatisfactory. He assumed that the elasticity of supply of labor was infinite (over a sizable range) with respect to the current money wage rate; i.e., that a sizable part of the work force would refuse to work for a money wage less than that currently prevailing. Consequently, if the demand schedule for labor (with respect to the money wage rate) should happen to intersect the supply curve somewhere to the left of the upper limit of the flat range (of the supply curve) part of the labor force would become involuntarily unemployed, but with no tendency for the money wage rate to fall. This is theoretically possible, but not very likely, and it is certainly not the basis for a "general theory of employment."

In the models that have been constructed by Hicks, Lange, Lerner, and others, this aspect of the Keynesian system is virtually neglected and the wage rate is taken as a datum. In Professor Tarshis' exposition this is also done in effect. By implication this defines another Keynesian model—the one with which we are most familiar and with which Keynes himself worked through most of *The General Theory*. Professor Tarshis gives an excellent brief description of this model; it is necessary to note only that it implicitly assumes the money wage rate to be constant. (Keynes's own use of wage units reflects this same assumption.) The short-run equilibrium with which Keynesian analysis is concerned is thus a short run during which the money wage rate is constant; it is also a "Marshallian" short run during which the stock of capital is constant. Whether these two different definitions of the "short run" would always be compatible, is an interesting question, but one which cannot be discussed here.

Keynes's loyalty to the neoclassical tradition is exhibited in others ways. For him, as for his predecessors, the rate of interest was the instrument by which investible funds were rationed. The rate of investment was determined by the equilibrium condition that the marginal efficiency of investment equals the rate of interest. The main difference between his theory and those that preceded it, is (in this respect) that in his system an increased desire to hold cash balances may, *ceteris paribus,* lead to an increase in the rate of interest and a resulting reduction in investment, while this could not happen in the others. Put in a somewhat more technical way, in the neoclassical system, k (in the Cambridge quantity equation) is not dependent on the rate of interest, while in the Keynesian system it is. But such differences are minor, as compared with the differences between either of these systems and those used by many econometricians in applied work. In these systems the rate of interest is virtually (sometimes completely and explicitly) abandoned as a determinant of investment. The attitude that leads to the adoption of such models has been well expressed by Hicks (*Value and Capital,* page 225): "Interest is too weak for it to have much influence on the near future; risk too strong to enable interest to have much influence on the far future." Hicks himself, for other reasons, did not wish to discard the interest rate entirely as a determinant of investment.

In these econometric models, it is implicitly assumed that the demand schedule for investible funds has, for a considerable range of yields, virtually a zero elasticity. Investment is restrained by considerations of risk, of market limitations, etc., but not by limitations of investible funds. To my way of thinking, it is quite improper to eliminate availability of funds as a determinant of the rate of investment. However, the model that seems to me correct is neither Keynesian nor neoclassical.

Such a model would be based squarely upon the fact of capital rationing. Each firm would have its own sources of capital, the supply of which would not be closely related to the rate of interest it must pay. The rate of interest would be only one, and perhaps not a very important, term in the loan contract; other terms, involving the security of the borrower, etc., might well be more important. In such a model, it would be possible to have low open-market rates coupled with a shortage of available funds for borrowers whose securities did not qualify for the open market.

This type of theory would have given Lord Keynes all the latitude he needed to develop a "general theory of employment." But to have accepted such a theory would have involved a sharp departure from the neoclassical assumption that the rate of interest allocates investible funds. That Keynes chose a path much closer to that of his predecessors is further evidence of the intellectual paternity of *The General Theory* to which Professor Tarshis has referred.

Now for a brief comment on Professor Williams' paper. If I am not misinterpreting him, his remarks are directed not only at "Keynesian economics," but at all formal systems that attempt to explain the behavior of one set of economic variables in terms of the behavior of another set of variables. Professor Williams' skepticism undermines neoclassical theory as well as Keynesian. To him, both theories are oversimplifications; in fact all explicit theories are. And, if I interpret him aright, adding more variables would not improve matters, for no theory involving a finite number of variables could possibly be adequate; reality simply cannot be interpreted in these terms.

In this contention Professor Williams is, I think, correct. His correctness is evidenced by the fact that when econometric models are constructed, no matter how many explicit variables are inserted, it is always necessary to insert one or more terms to take account of errors and shocks; i.e., to take account of all the unspecified independent variables that affect the system. To the econometricians, Professor Williams, and the many economists who agree with him, would say, in effect, that the usefulness of their models as explanatory devices will depend upon the adequacy with which they can specify the probability distribution and estimate the parameters of the system; and, I think, they would be inclined to express skepticism as to the ability with which these tasks can be performed. With this skepticism I should be, at present, inclined to agree, although the researches of the Cowles Commission may force me to change my mind.

But although Professor Williams' skepticism concerning formal methods may be very well taken, it does not help us decide the question of how to proceed in economic investigations. If the formal methods common to both neoclassical and Keynesian theory are inadequate to serve as guides to policy, and if the improvements in model construction introduced by econometricians are not a substantial improvement, then what methods are we to use? It is this question that Professor Williams, and those who believe as he does, must answer if they are to be constructive, as well as wise.

KEYNESIAN ECONOMICS: THE PROPENSITY TO CONSUME AND THE MULTIPLIER

THE MULTIPLIER

By Arthur Smithies
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When the multiplier concept was first introduced to economics in the early thirties by R. F. Kahn and later elevated to a central position in *The General Theory,* it was viewed with dark suspicion by many economists. It seemed to be a device for pulling the economy up by its bootstraps; and this impression was accentuated by the favorite numerical example that yielded a multiplier of ten.

Now that we have come to understand the concept, it has acquired respectability even to the point of dullness. It merely epitomizes the change that occurs in an equilibrium system due to some outside influence. To illustrate: suppose the price of a commodity is determined by the intersection of straight-line demand and supply curves and there is an upward shift in the demand curve. We can then say that there is a "multiplier" that, when multiplied by the amount of the shift, will give the increase in the price and quantity sold. The size of the multiplier depends on the slopes of the demand and supply curves. The shift is the outside influence, and price and quantity are the variables of the equilibrium system.

From the formal point of view, the multiplier in *The General Theory* is even simpler than the example I have just given. The variables of the system are consumption, investment, and income. Consumption is held to be determined by income, while investment is determined by outside influences—factors independent of present income, such as the quantity of money and the state of expectations.

Equilibrium is established where consumption, determined by its normal relation to income, and investment together add up to income. If there is a change in investment, consumption and income will change to an extent that depends on the marginal propensity to consume—the only "slope" in the system. In other words, the Keynesian multiplier depends on the marginal propensity to consume alone.

Had the formal part of *The General Theory* been presented as an exercise in comparative statics, which Keynes began to do in Chapter 3, it could have been made as simple as an elementary textbook.

For practical purposes we need a more elaborate system than the sample one I have just described. In addition to private consumption and investment, it is necessary to introduce explicitly the spending and taxing activities of the government and foreign trade. The government as a spender on goods and services contributes directly to effective demand. By taxation and transfer payments, it affects private propensities to spend. The demand of foreigners for our exports adds to demand, while our demand for foreign exports subtracts from it.

Each of the behavior variables—consumption, investment, government spending, exporting, and importing—can be regarded as partly endogenous and partly exogenous. In simpler language, each of them depends to some extent on the present (equilibrium) value of income and to some extent on other factors that are independent of income, such as the stock of existing capital, the foreign loans and grants the government is prepared to make, the standard of living people insist on maintaining, and so on.

With this system, we can give a simple formula from the equilibrium national income:

$$\text{National income} = \frac{\text{Sum of the influences of exogenous factors}}{1 - \text{Sum of marginal propensities}}$$

The marginal propensities included in the formula are:

The marginal propensity to consume
The marginal propensity to invest at home
The marginal propensity to invest abroad, and
The marginal propensity of the government to spend on goods and services.[1]

The general multiplier is then $\dfrac{1}{1 - \text{Sum of marginal propensities}}$.

This is the factor by which any change in the exogenous influences is multiplied in order to get the resulting change in national income. This formula is, of course, a simple extension of the Keynesian formula that takes account of the greater generality of our present model.[2]

Let us now try to form some rough idea of the magnitude of the

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[1] Let D_i denote the demand for goods and services by consumers, investors, government, etc. Assume $D_i = a_iY + E_i$, where E_i represents the influence of exogenous factors, then since $\Sigma D_i = Y$ we have

$$Y = \frac{\Sigma E_i}{l - \Sigma a_i}$$

[2] For the sake of completeness, the multplier to be applied to an increase in transfer payments or a reduction of taxes of specific sums is:

$$\frac{1}{1 - \text{Sum of marginal propensities}} - 1$$

The deduction of 1 is due to the fact that in these cases the multiplier process begins with the second round. The original expenditure on goods and services is missing, and beneficiaries of the government's action are assumed to save part of the increased transfer payments or the remitted taxes.

marginal propensities, and consequently the multiplier, for 1948 in the neighborhood of present levels of national income and with present tax rates.

I shall confine myself to the question of money income and shall so avoid the difficult questions of deflation that would otherwise arise in circumstances where changes in real income are almost inevitably associated with price changes.

1. *The Marginal Propensity to Consume.* Two steps are required to estimate the marginal propensity to consume.

a) We need to know the relation between national income and disposable income. The difference between the two, except for minor adjustments, is equal to personal and corporate taxes plus corporate savings minus government transfer payments for unemployment compensation, veterans' benefits, and so forth.

It is futile to attempt to derive this relation from the study of historical time series, because of changes in the tax structure, especially during the war period. Instead, one has to estimate the disposable income that corresponds to various hypothetical levels of national income and use the results to compute the relation between the two. This was the method I used in my article, "Forecasting Postwar Demand" (*Econometrica,* January, 1945). Since then those estimates have been revised by my staff in the Budget Bureau.

The most difficult questions arise when we attempt to estimate the relation of corporate profits to national income. Recent experience has been by no means regular, so that the prewar relationship cannot be relied on. After considering the data we have decided to assume that about 25 per cent of any increment of national income goes to profits before taxes, excluding inventory profits. This estimate means that corporations as a whole would break even at a national income of about 100 billion dollars which does not seem unreasonable. Inventory profits are assumed to be closely related to price changes.

In the estimate of corporate savings, we have assumed that corporations follow a relatively stable dividend policy by accumulating large savings in prosperous times in order to keep up dividend rates in times of depression.

Once corporate profits and corporate savings have been estimated, it is relatively easy to estimate taxes by direct methods. The estimate of transfer payments requires knowledge of the relation of employment to national income. We have assumed that a 20 billion dollars decrease in money national income will involve a decrease of prices of 5 per cent and a decrease of employment of 2 million.

From these assumptions, we finally arrive at the formula.

Disposable income $=.60$ national income $+$ a constant.

b) The second step is to find the relation of consumption to disposable income. This of course involves all the intricacies of the theory of consumer behavior, into which I do not propose to enter here. Among all the conflicting theories of the matter, there seems to be a remarkable degree of agreement about the value of the marginal propensity to consume.

The relation assumed by Haavelmo,[3] Modigliani,[4] and Deusenberry[5] and the relation I assumed in my 1945 article all give very similar results from the new data now available from 1929 to 1941. All these relations lead to a figure of approximately .70. Also, Klein's study[6] for the period 1920-41 based on the old data results in a marginal propensity of .70. On the basis of prewar data, I therefore feel justified in using that figure.

Whether or not .70 is a suitable figure for the postwar period is much more open to doubt. Without question it has not represented the situation of combined abnormal demand and commodity shortage of the past two years. For that period it would be impossible to refute the hypothesis that the marginal propensity to consume out of disposable income is equal to unity.

On the basis of these two relations, I propose to assume that the marginal propensity to consume out of national income is .60 × .70 or .42. However, the evidence of the most recent past indicates that, temporarily at least, the figure is higher than this and may be as high as .60.

2. *The Marginal Propensity to Invest.* For an estimate of the private propensity to invest, we again have to rely on the data for the years 1920-41. Klein has worked out, as part of his complete system, an investment demand equation in which the rate of private investment depends on "profits" after taxes and the existing stock of capital equipment. The latter factor is exogenous from our point of view while profits after taxes are related to national income and the tax system. We can thus transform Klein's equation into a relation to national income. When this is done his system yields a marginal propensity to invest of .09; that is, 1 billion dollars additional national income would induce new investment of 90 millions. Of course the validity of this figure at the present time is open to question.

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[3] "Methods of Measuring the Marginal Propensity to Consume," *Journal of American Statistical Association*, March, 1947, p. 105.

[4] "Fluctuations in the Savings Ratio: A problem in Economic Forecasting," given before the 1947 Conference on Research in Income and Wealth.

[5] Paper given before the Econometric Society in January, 1947. Deusenberry's method is identical with Modigliani's.

[6] See L. R. Klein, "Economic Fluctuations in the United States 1921-1941," June, 1947 (unpublished Cowles Commission monograph). I have used Klein's simple model worked out by the maximum likelihood method.

3. *The Marginal Propensity to Invest Abroad.* At the present time and for some time to come it is more convenient to deal with the difference between exports and imports than to consider them separately. It seems reasonable to suppose that foreign countries will spend in this country what they can earn by exporting to the United States, plus what this country is prepared to make available to them by way of loans, grants, or other investments.

Thus, while exports and imports may well both depend on national income, the difference between them can be considered to be determined by factors independent of national income. In short, the marginal propensity to invest abroad can be assumed to be zero.

4. *The Marginal Propensity of the Government to Spend on Goods and Services.* Certain government programs fluctuate with the national income. We have already taken into account changes in transfer payments in estimating the propensity to consume. Expenditures for aid to agriculture depend on agricultural prices which, other things being equal, depend on national income. There is probably some automatic flexibility in the public works programs in that larger expenditures are likely to be made when materials are more readily available and construction costs relatively low.

I have no precise estimates of this type of flexibility in the federal budget, but shall assume that a drop in national income of 100 billion dollars would automatically increase expenditures for goods and services by 2 billions. In other words, the marginal propensity of the government to spend is assumed to be $-.02$.

Of course I am here considering only expenditures that change automatically. New government programs undertaken because of a depression or for any other reason are included as exogenous factors.

We can now return to the multiplier. With the marginal propensity to consume at .42, the marginal propensity to invest at .09, the marginal propensity to invest abroad at zero and the marginal propensity of the government to spend at $-.02$, our estimate for the multiplier in 1948 is:

$$\frac{1}{1-(.42+.09-.02)}=2.0$$

Because of the roughness of some parts of this estimate, it is impossible to calculate confidence limits by statistical methods. I would hazard the guess, however, that there is a very high probability that the multiplier is between 1.6 and 2.1, provided the prewar experience on which it is largely based is applicable to the year 1948.

I have already suggested that the marginal propensity to consume out of disposable income may be unity at the present time. In that event, the marginal propensity to consume out of national income would be .60. The multiplier would then be:

$$\frac{1}{1-(.6+.09-.02)}=3.0$$

With the simple aggregative system I have used, my estimates give the multiplier to be applied to a change in any exogenous factor—an autonomous increase in private investment at home or abroad, an increase in minimum consumption standards, or an increase in government expenditures. In a more detailed analysis it might well be found that different multipliers should be applied to the various exogenous factors. In particular it is likely that the leakages in the first round may differ. For instance, the multiplier effects of payments on a government procurement contract and of payments for work relief may differ widely. Refinements of this kind would require direct case studies. However, I am not recommending such studies as a major preoccupation for economists, since I believe that government expenditure programs should be undertaken on the basis of their inherent usefulness rather than their multiplier effects.

In discussions of government spending, interest frequently centers on the income effects produced—not so much by the change in expenditures but by the change in the budget surplus or deficit. Let us consider that question for a moment.

We estimate that the yield of the present federal tax system increases by about 25 per cent of any increase in the national income. Thus, if an increase in federal expenditures of 1 billion dollars increases the national income by 2.0 billions, federal tax yields will increase by 25 per cent of 2.0 billion dollars or .5 billions. Thus the budget surplus will be reduced or the deficit increased by only 500 millions. That means that the increase in income will be four times the increase in the deficit.

If we use the multiplier of 3.0 which I suggested cannot be excluded at the present time, an expenditure increase of 1 billion dollars would mean an increase in the deficit of only 250 millions. Only a small revision of the figures could result in a situation in which an increase in expenditures was self-financing or actually improved the state of the budget.

This alarming result is the product of a high marginal propensity to consume, a high marginal tax rate, and the existence of induced investment. It leads to no theoretical absurdities such as "explosive situations." I am not saying that it is true at the present time, still less that it will be true in the future, but I do say that it may be true. I would like to add for the record that the budget of the federal government is being prepared on the basis of more orthodox preconceptions.

The condition under which an increase in expenditures would be self-financing or would improve the state of the budget can be stated in either of two ways.

$$\text{(a)}\quad \begin{array}{l}\text{Marginal tax rate on na-}\\ \text{tional income}\end{array} \geq 1 - \frac{\begin{array}{c}\text{Marginal propensity to invest}\\ \text{with respect to national income}\end{array}}{\begin{array}{c}\text{Marginal propensity to consume}\\ \text{with respect to income after taxes}\end{array}}$$

or

$$\text{(b)}\quad \begin{array}{l}\text{Marginal propensity to}\\ \text{consume with respect to}\\ \text{income after taxes}\end{array} + \begin{array}{l}\text{Marginal propensity to invest}\\ \text{with respect to income after}\\ \text{taxes}\end{array} \geq 1$$

These two relations are formally equivalent. Choice between them depends on whether investment is related "structurally" to the whole national income or to income after taxes. In the former case, the marginal tax rate is relevant; in the latter the extent to which expenditures are self-financing is independent of the tax rate.

I have tried, in this discussion, to put the multiplier concept in its proper setting—to show that it should be regarded as a shorthand device for describing the difference between two equilibrium positions. But even in its proper setting, I consider it a dangerous instrument that is apt to be used indiscriminately. In particular, there is a tendency to apply the multiplier to changes in one exogenous factor without proper attention to what may be happening to the others. The only satisfactory way to proceed is to work with the entire model rather than to compress it into a single figure.

A more important objection is that the multiplier is an instrument of comparative statics. The events of the last two years should convince us that many of the purposes for which the multiplier was designed can only be achieved by a dynamic analysis. Fortunately, for our profession, economics is still more than an exercise in simple arithmetic.

DISCUSSION

GEORGE GARVY: After listening to Professor Tarshis and after rereading Dr. Smithies' paper, in *The New Economics* to which Professor Williams has referred, I was tempted to say, paraphrasing Lord Keynes, in the long run we are all Keynesians. That is, most economists now recognize income determination to be *the* central problem of economic analysis, and most of us, or at least a substantial minority, are inclined to appraise the value of economic theory in relation to its usefulness in solving specific problems of economic policy. Some of us, however, who are concerned with short-run analysis and forecasting find our toolbox not too well stocked. Since the multiplier is one of the main tools in the Keynesian toolbox—or should I say emergency kit?—I find the contributions of the two speakers very stimulating.

The application of the generalized multiplier proposed by Dr. Smithies involves estimating several marginal propensities in addition to the propensity to consume. Since the numerical value of the propensity to consume is by far the largest, it will remain the critical variable in the model suggested by Dr. Smithies. I wish Dr. Smithies had been more specific with respect to the stability of the consumption function. He mentions the roughly similar estimates made by Haavelmo, Modigliani, Deusenberry, and Klein who place the marginal propensity at 0.70. But then he goes on to say that at the present time, the marginal propensity to consume might be unity. It is strongly suggested by time series, as well as by budget and other survey data, as Deusenberry has pointed out, that the consumption function is subject to cyclical shifts. Probably a different value for the marginal propensity to consume should be entered in Dr. Smithies' formula for each individual phase of the business cycle and in each given situation. For short-run forecasting such cyclical shifts and changes in the slope of the consumption function are certainly more important than the long-run upward drift suggested by Professor Kuznets' data.

At this point it seems to me particularly important to investigate, not only how much the consumption function shifts, but why it shifts; this knowledge is absolutely essential when making policy recommendations. In this connection, the exploration of the relationship between dissaving and consumer expenditures offers particularly rewarding possibilities. In this direction Dr. Deusenberry has done some very valuable work which he chose not to discuss at this time. When trying to estimate the other propensities needed for his formula, Dr. Smithies is likely to encounter the same difficulties as with the consumption function. In other words, all the problems of stability and cyclical behavior of these propensities will arise.

At this point I would like to add a general remark. When we economists have become aware of certain deficiencies in our toolbox, we have addressed our first appeals for help to mathematicians. Now Deusenberry pleads that economists should "try to build our theories on a cultural basis" and to pay more attention to sociological facts. Earlier this year in Atlantic City, George Katona discussed the contribution of psychological data to economic analysis.[1]

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[1] "Contribution of Psychological Data to Economic Analysis," *Journal of the American Statistical Association*, September, 1947.

Both suggestions point in the same direction—to the need to take sufficient account of motivations. In no field is this more important than when dealing with consumer behavior; that is, with the consumption function.

For the purpose of forecasting, Dr. Smithies' generalized multiplier should be adapted to take into account the various lags involved; he has indeed stated this himself in his paper. In order to estimate the effect of all exogenous factors on income generation during a given period, say a fiscal year, we need to know (1) what portion of the injection is likely to be translated into additional income before the end of the fiscal year and (2) to what amount the multiplier effect of injections of past periods is likely to sum up during the fiscal year considered. The time lags are not likely to be the same for all categories of exogenous factors.

In practical work, therefore, while preserving the concept of the generalized multiplier, Dr. Smithies would probably have to operate with a set of separate multipliers.

The search for exogenous variables obviously involves the breaking up of all categories of expenditure into two components—the first to be treated as an exogenous factor and the second as being determined by the current level of income. At least, this is necessary when applying different lags and different partial multipliers.

The simple Keynesian model involves the distinction between consumption and investment only. True, several alternative definitions of consumption are possible and have actually been used in models. But once the choice is made—for instance with respect to the treatment of housing expenditure—the data needed for this type of analysis are the respective time series derived from national income statistics. Not so in the model advanced by Dr. Smithies. Here, each category of expenditure contains both an endogenous and an exogenous component. In other words, a cross classification is involved: (1) by category of expenditure and (2) with respect to its dependence on current income. For each forecasting period the analyst will have to make a judgment as to the amount of exogenous expenditures involved. This might prove particularly difficult with respect to consumer expenditures.

I finally would like to point out that Dr. Smithies' generalized multiplier has much in common with Professor Goodwin's treatment of the income-generating effect of what he calls injections, defined as all expenditures, whatever their nature, provided they are not made out of income received.[2] The similarity extends to the treatment of the intercept of the consumption function (the theoretical value of consumption at zero income) which in both cases is treated as an exogenous factor. Both Dr. Smithies and Professor Goodwin strive to achieve the same goal—to remove the restrictive assumptions from the concept of the multiplier and to make it a more flexible tool of dynamic analysis.

I find it difficult to comment on Dr. Deusenberry's paper since I find myself in substantial agreement with all that he said. I would like to raise only one minor point. The consumption function is a behaviorist equation. It can claim validity for a homogeneous group only. Budget data strongly suggest that there exist considerable differences in the shape and position of the consumption function for various socio-economic groups, for instance, for farmers and nonfarmers, or families with stable incomes and families with falling incomes, etc. We have here a problem of aggregation. The solution generally adopted is the simplest one; namely, to deal with total population as a whole. The various parameters thus represent average behavior and it is claimed that this is sufficient since no great shifts are likely to occur in the short run.

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[2] Richard M. Goodwin, "The Multiplier," *The New Economics*, Ch. XXXVI.

It is likely, however, that not only do parameters have a different value for each homogeneous group, but also that the relevant variables are not identical for all component groups. Thus, for instance, liquid assets might be irrelevant as determinants of consumption expenditures for families who hold none (or only negligible amounts). But they are likely to prove an important factor for families that hold liquid assets in excess of some minimum amount. One of the useful refinements of the application of the consumption function might be to estimate the marginal propensities to consume for the main components of the total population and then to obtain for each given period the appropriate weighted average propensity, taking into account any shifts that might result from cyclical and long-run factors, from changes in holdings of liquid assets, consumer and producer expectations, etc.

Given by an expert practicitioner like Dr. Smithies, the warning that the multiplier concept is a dangerous instrument is significant. Our recent experience with its more or less crude application in forecasting is far from encouraging. I agree, however, with Deusenberry that the interest in the consumption function should not be reduced to the derivation of the multiplier. But much more empirical work, particularly in the direction indicated by Deusenberry, is necessary before we shall be able to properly integrate the consumption function in economic analysis.

SAMUEL M. COHN: In his paper, Mr. Deusenberry has given us a valuable education, or re-education, in the meaning of the application of statistical techniques, both generally and to the estimation of consumption functions in particular. There are a few things I should like to add to (or emphasize in) his discussion.

At the present state of our knowledge, measurements of the marginal propensity to consume (or save) as obtained from statistically estimated consumption functions should be considered as no more than general notions of magnitude. They are useful in analysis, but are not precise measures adapted to ready extrapolation. I therefore feel obliged to warn against their indiscriminate use for purposes such as economic forecasting. The margin of error is usually sufficiently great to create a deflationary or inflationary "gap" which does not or will not exist.

Some of the error is caused by the inexactness of the data. Many of us who used time series aggregates to estimate consumption functions—Mr. Smithies' estimates, for example, were based on time series—found that the recent statistical revisions of Department of Commerce national income data were relatively large, and the size of the revisions each year were apparently independent of movements of income or of time. Continued use of the unrevised data, therefore, introduces error into the relationships. The revisions, however, have been made only for the years since 1929. Measurements based on the revised data, therefore, are seriously affected by depression influences, the seriousness of which we all hope will not be repeated. Depression behavior was quite different from that of the predepression period and that of today. It can be shown, in fact, that consumption patterns or functions which fit the data well for periods of time starting with 1910 or 1920 either cannot be accepted for the period between 1929 and 1940 or even seem to work in reverse for that period.

Family budget study data such as those mentioned by Mr. Deusenberry also present problems. Among other things, there are questions of the reliability of respondents' memories, the representativeness of samples used, and the comparability of studies undertaken at different times, often for different purposes.

Even if accurate and comparable data were available, it seems improbable that any single hypothesis could completely explain all the disturbances which might have affected consumer behavior. Presentation of any estimated relationships, therefore, should be accompanied by confidence limits. Trygve Haavelmo, in an article in the *Journal of the American Statistical Association* of March, 1947, illustrated some of the problems involved in minimizing biases in statistical estimation and the importance of presenting confidence intervals for his estimates.

After consideration of the data and the methods of statistical estimation, the matter of interpretation of the estimated relationships and their applicability to current or future situations arises. In this connection, I should first like to emphasize the difference between the multiplier and the marginal propensity to consume as presented in Mr. Smithies' paper and that derived from the usual time series regressions or from family budget data. Mr. Smithies has measured the multiplier and the marginal propensity to consume as a Keynesian concept; that is, as a relationship involving the national income or product. In terms of economic behavior, however, consumption expenditures are a function of disposable income, not of national income. Hence, in estimating the marginal propensity to consume from hypotheses regarding consumer behavior, disposable income is the proper independent variable to select. (In family budget studies, family income is used as the best approximation to disposable income.) Mr. Deusenberry confined his remarks to this kind of estimation. Rather than ending here, Mr. Smithies has obtained a relationship between disposable income and national income, and has thereby presented his measures in the Keynesian sense. The latter relationship is based on existing tax legislation and would change with any change in tax laws.

We all agree that consumption expenditures are a function of current income. But over time there have been changes in the marginal propensity to consume out of disposable income. Therefore, consumption expenditures also seem to be affected by factors other than current income. The hypotheses offered by Mr. Deusenberry would include among these other factors changes in income distribution and the effect of a previously attained standard of living. These seem to be tenable hypotheses which explain some of the cyclical instability we have not been able to explain before. Mr. Deusenberry's long-run hypothesis has the desirable characteristic of substituting logically acceptable independent variables in the consumption function in place of a time factor device to represent changes not otherwise measurable.

This hypothesis, however, is not the only possible one to explain long-run variations. In recent years, I have heard some economists voice the belief that some kind of structural change has taken place in the economy, which has resulted in consumers now having a higher marginal propensity to consume than they did in earlier years. However, I am still not sure about what is meant by a "structural change." It seems to me that changes in one or more variables not included in the estimated consumption relationship would qualify as a change in economic structure under such loose terminology. Shifts in the income distribution as described by Mr. Deusenberry, therefore, would be such a change unless it were explicitly taken into account as he suggested. I believe there is a fundamental difference between changes of this nature and those arising from psychological factors affecting people's tastes (aside from those arising from changes in income) or institutional factors such as the increase in installment buying which has taken place in the last twenty years.

Before we speak in very general terms of structural changes, therefore, I believe we should exhaust all possibilities of setting up hypotheses to test the effects of changes in demographic and other measurable factors. I do not think that I would consider the effects of population changes as a structural change in the economy, especially if each characteristic unit in the population behaved no differently over time.

There are a number of hypotheses which might be offered to explain the effect of changes in the population. For example, it is possible that there is a different propensity to consume for different age groups, that the foreign born have a different propensity to consume than the native born, or that the marginal propensity to consume is a function of other characteristics such as education or occupation or urban versus rural location. A shifting age level of the population, or a decline in the number of foreign born inhabitants of the United States, therefore, might well cause a change in the marginal propensity to consume for the country as a whole. In all of these hypotheses, I have been thinking in terms of real income and real consumption per capita.

Unfortunately, I have not had the opportunity to test any of the theories I have just offered. Some of them might not be independent of Mr. Deusenberry's income-distribution approach. For example, some segments of the population might usually fall in the same income brackets, or might as a body rise or fall in the distribution. Nevertheless, I believe they are important and worth study. Some might be roughly tested from time series aggregates on income and consumption, and census population data. For others, however, we would have to consult family budget studies and hope that new studies will be made in sufficient detail to allow us to make the necessary tests.

KEYNESIAN ECONOMICS: SAVINGS, INVESTMENT, AND WAGE RATES

THE DEMAND FOR INVESTMENT GOODS

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1. *Statement of the Problem*

The demand for investment or capital goods and the relation of this demand to the rate of interest has long been of interest to economists. Alfred Marshall, Irving Fisher, A. C. Pigou, D. H. Robertson, Harold Hotelling, Von Mises, F. A. Hayek, and John Maynard Keynes[1] have all made important contributions. The writer[2] has been continuously interested in the problem for over twenty years. Yet no one has yet presented an econometric analysis which can be used to forecast the demand for investment goods as a whole.[3] The forecasts of the Keynesian economists of the postwar demand for investment goods in the United States, for example, missed very badly. Consequently one may well raise the question as to whether the most recent or Keynesian formulation of the problem is correct. The writer takes the position that it is not.

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[1] See, for example, David Ricardo, *Principles of Political Economy*, p. 511; Alfred Marshal, *Principles of Economics*, 6th ed., pp. 519-520 and 593; A. C. Pigou, *Economics of Welfare*, 3rd ed., p. 163, and *Industrial Fluctuations*, 1st ed., pp. 251-253; D. H. Robertson, "Industrial Fluctuations and the Natural Rate of Interest," *Economic Journal*, 1934; Harold Hotelling, "A General Mathematical Theory of Depreciation," *Journal of the American Statistical Association*, 1925; F. A. Hayek, *The Theory of Money and Credit*, pp. 339-364; and John Maynard Keynes, *The General Theory of Employment Interest and Money* (1935), pp. 135-164.

[2] C. F. Roos, "A Mathematical Theory of Competition," *American Journal of Mathematics*, 1925, especially page 173; "The Problem of Depreciation in the Calculus of Variations," *Bulletin of the American Mathematical Society*, 1928; "A Mathematical Theory of Depreciation and Replacement," *American Journal of Mathematics*, 1928; "Some Problems of Business Forecasting," *Proceedings of the National Academy of Science*, 1929; "A Mathematical Theory of Price and Production Fluctuations and Economic Crises," *Journal of Political Economy*, 1930; "Theoretical Studies of Demand," *Econometrica*, 1934, particularly pages 84-89; *Dynamic Economics* (1934), especially pages 53-110. See also C. F. Roos and Victor S. Von Szeliski, "The Demand for Durable Goods," *Econometrica*, 1943, and by the same authors, *The Dynamics of Automobile Demand* (1939).

In the first paper (1925), the author introduced into economics the concept of economic hysteresis or the effect of the past history of economic variables upon present demand and supply. He also developed equations for maximizing the sum (integral) of anticipated returns or profits over a period of time subject to dynamic demand and supply functions. In the second and third papers he used the present value of expected profits or returns and considered several problems of depreciation and replacement of investment goods. In the paper on business forecasting (1929), he showed that changes in the interest rate (force of interest) would change the demand and supply solutions and so lead to business oscillations. In the 1930 paper he showed that for certain rates of interest the production and demand functions are oscillatory and for others increasing or decreasing. These oscillatory solutions can be obtained even when the cost of production does not depend upon the acceleration of production, provided demand depends upon past values of prices and production (economic hysteresis). In the *Econometrica* article (1934), the author stressed this characteristic of demand. He elaborated the notion in *Dynamic Economics* and showed that for many functions, anticipated price and production changes can be replaced by functions of past changes (lag or economic hysteresis). In this same book, Chapter VI, he showed that the demand for new residential building depended upon the capitalized value of past rentals and their relation to cost and availability of credit. In later papers actual dynamic statistical demand functions for new automobiles, electrical equipment, and railroad equipment were presented.

The purpose of the present paper is to give a theoretical-quantitative analysis of the demand for investment goods which has proven to be satisfactory for forecasting the demand for producers' durable equipment, in general, and for industrial construction. Another purpose is to show how the theory presented is related to the work of Keynes, Hayek, Pigou, and published work of the writer.[4]

2. *The Formulation of the Problem*

Investment goods in the sense used in this paper includes private producers' durable equipment, private producers' plant construction, and new private residential construction. Each of these three subdivisions has been considered separately and a demand function for new investment goods worked out for each. The total demand for new investment goods is thus the sum of these three separate demands. In the present paper, however, only the study of the demand for producers' durable equipment and for private producers' plant construction will be presented.[5]

Insofar as possible the notation and terminology used will be that employed by Keynes in his *General Theory of Employment Interest and Money*. For example: Q_t is the return on a capital asset in the year t, after deducting expenses. For all producers' assets it may be taken as corporate profits as presented in Table 19 of the Income Supplement of the United State Department of Commerce, July, 1947.

The supply price of the capital asset is the price which would just induce a manufacturer newly to produce (install) an additional unit of such assets; i.e., what is sometimes called its replacement cost. The supply price of all producers' durable equipment would thus be proportional to an index of prices of machinery and machinery products.

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[3] The author makes this statement in full awareness that Oscar Lange, Jacob Marschak, and others have presented mathematical formulas for the demand for investment goods and also calculated statistical constants.

[4] The theoretical approach presented, together with studies of the demands for consumers' perishable goods, consumers' semiperishable goods, and construction materials, was used by the author to forecast on June 7, 1945, that the Federal Reserve Board Index of Industrial Production would average 171 for 1946 and that at the low month of the conversion period industrial production would fall within the range of 155-160. The index averaged 171 for 1946 and touched 153 during the low month of February when the steel strike was in progress. Techniques used were published in *Economic Measures,* 1939 and subsequently.

[5] The study of the demand for new residential building has been prepared for the Joint Committee on Housing of the United States Senate and House of Representatives.

Such a price series is published by the Bureau of Labor Statistics but extends backward only to 1929. It is highly correlated since 1929 with the longer BLS index of metals and metal products. Consequently, it is assumed that the supply price is *porportional* to the BLS index of prices of metals and metal products.

The rate of interest (or discount) in the first study presented is assumed to be the long-term rate measured by the yield on AAA bonds as computed by Moody's Investors Service. In a second study a combination of this rate and the short-term bank rate on 4-6 months prime commercial paper is used. The second approach recognizes the custom of corporations of financing purchases of durable equipment by recourse to both the long-term capital markets and short-term borrowing. The "rate of interest" used in the second study is .75 times the long-term bond yield plus .25 times the short-term rate.

According to Keynes the marginal efficiency of capital would be the interest or discount rate which would make the present value of the series of annuities given by the returns expected from the capital assets during its life (Q_t) just equal to its supply price. Although the writer in 1927-29 gave considerable attention to expected returns and their discounted present value as an element in determining investment, his later studies indicate that actual investment lags returns or profits rather than leads them.[6] Thus, past rather than future profits determine investment, and so Keynes has overemphasized the role of expected profits and consequently produced a somewhat unrealistic idealized theory.[7]

In the present paper the profits for the year ending six months previous are used in place of the series of annuities employed by Keynes. Thus the marginal efficiency of capital is the interest or discount rate which would make the capitalized value of profits for the year ending six months previous equal to the current supply price. Using this definition and the above definitions of the rate of interest the writer then in a more or less general way agrees with Keynes that ultimately "the rate of investment will be pushed to the point on the investment demand schedule where the marginal efficiency of capital in general is equal to the market rate of interest."[8]

At this point, however, there is a parting of the ways. Keynes writes on page 192:

[6] Even the stock market lags current interest rates and current new orders which, of course, determine earnings in the near future.

[7] Keynes seems to have believed that the past history of an economic variable determines its future. At least Lawrence Klein (*The Keynesian Revolution* [New York, 1947] p. 193), attributes such belief to Keynes. This, however, is quite different from the point made here; namely, that demand for investment goods depends upon the past history of *another* variable. See C. F. Roos, *Dynamic Economics* (Bloomington, 1934), pp. 59-65.

[8] J. M. Keynes; *General Theory of Employment, Interest and Money* (1935), p. 137, The present formulation also takes into account Keynes's footnote regarding variations in short- and long-term interest rates.

> A peculiar theory of the rate of interest has been propounded by Professor Von Mises and adopted from him by Professor Hayek and also, I think, by Professor Robbins; namely that changes in the rate of interest can be identified with changes in the relative price levels of consumption goods and capital goods. By a somewhat drastic simplification the marginal efficiency of capital is taken as measured by the ratio of the supply price of new consumers' goods to the supply price of new producers' goods. This is then identified with the rate of interest. The fact is called to notice that a fall in the rate of interest is favorable to investment. *Ergo* a fall in the ratio of the price of consumers' goods to the price of producers' goods is favorable to investment.

Notwithstanding Keynes's bombastic criticism, statistics clearly indicate that the ratio of nonfarm prices (consumers goods prices essen-

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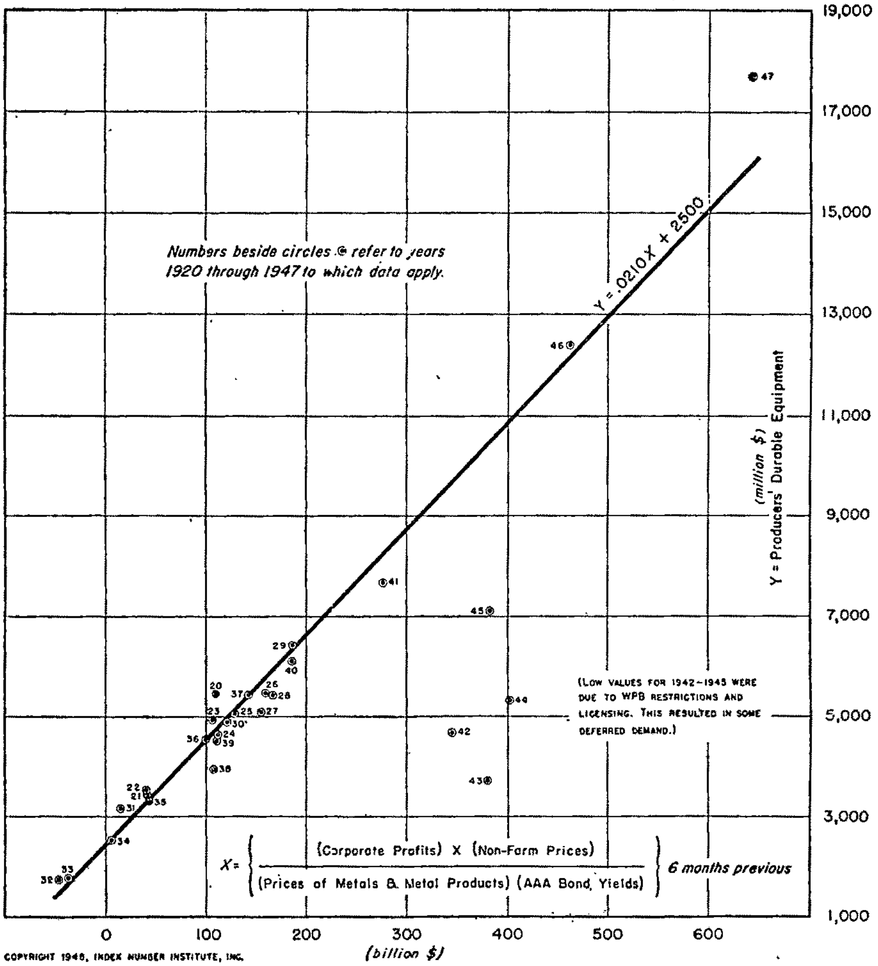

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CHART I

tially) to the prices of metals and metal products (capital goods) is a significant factor in determining investment in producers' durable equipment. Chart I shows that expenditures for domestic producers' durable equipment for each year from 1919 through 1946 is closely related to the value for the year ending six months previous of capitalized corporate profits times the ratio of nonfarm prices to prices of metals and metal products. The correlation is disturbed only in the war years when private investment was licensed to hold down activity, in 1920 when part of the deferred demand arising from World War I was expressing itself and in 1938.

The ratio of price indexes serves as a modifier of the going rate of interest or discount and so indicates unbalance between the theoretical rate of interest which would cause investment to be proportional to capitalized profits or returns and the actual rate of interest. The ratio of these price indexes is, to a much less degree, also a measure of future expectations of profits to be derived from the investment.

The formulation offered here recognizes that a change in money wages substantially influences the demand for investment goods. This last point follows because the price level of nonfarm consumer goods is closely correlated with the unit money wage cost. The influence on equipment expenditures is, however, delayed six months. Thus, the economists of the NRA were correct in 1933 when they maintained that increases in wages would immediately arrest deflation and later cause an increase in demand for durable equipment.[9]

The experience of the past two years also strongly emphasizes the importance of changes in the money wage upon the demand for investment goods. In November, 1945, President Truman publicly gave a go-ahead signal to the union leaders to try to get a 30 per cent increase in money wages. At the time, new orders for capital goods were declining. In the spring of 1946, substantial wage increases were granted in major industries and a general pattern was being set. In May, 1946, new orders for capital or investment goods reached an all-time high for a peace economy. This rush of new orders affected production favorably about six months later and contributed substantially to the strongly inflationary conditions of both 1946 and 1947.

The formulation presented in Chart I also helps to clear up some

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[9] It is of some interest to note that when Keynes visited the United States in 1934 he spent a day and a half talking with the author and his associates at the NRA. In the early stages of these discussions Keynes strenuously objected to the idea that a general increase in money wages would start economic recovery. He later presented this idea without acknowledgments. In his work he seems to have missed the important additional points that an increase in money wages would lead to (1) an increase in inventories of manufacturers and distributors, (2) higher recurring costs and so greater incentive to replace men by machines, (3) increased working capital demands and so increased bank loans unless government deficit spending provided this working capital, and (4) the collateral effects of these developments upon the demand for investment goods.

JANUARY 15, 1948

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
									Producers' Durable Equipment*	
Year	Corporate Profits*§	Non-Farm Prices†	Metals Prices†	(1) x (2) ÷ (3)	Column (4) 6 Months Previous	Aaa Bond Yields‡	Aaa Yields 6 Months Previous	Capitalized Relative Profits* .01 x (5) ÷ (7)	Actual§	Calculated .031 x (8) + 2500
1918			148.6							
1919	6,599	161.6	142.5	7,484		5.49			5,349	
1920	4,544	190.1	162.7	5,309	6,397	6.12	5.81	110,103	5,464	4,812
1921	− 270	122.9	127.9	− 260	2,525	5.97	6.05	41,736	3,413	3,376
1922	4,474	119.5	113.0	4,770	2,257	5.10	5.54	40,740	3,531	3,356
1923	5,978	123.9	119.0	6,224	5,499	5.12	5.11	107,613	4,973	4,760
1924	4,985	119.2	115.8	5,131	5,678	5.00	5.06	112,213	4,655	4,856
1925	6,828	124.5	112.4	7,563	6,347	4.88	4.94	128,482	5,089	5,198
1926	6,839	122.8	108.9	7,712	7,638	4.73	4.81	158,794	5,485	5,835
1927	5,962	116.2	104.9	6,604	7,158	4.57	4.65	153,935	5,095	5,733
1928	7,711	110.4	105.6	8,500	7,552	4.55	4.56	165,614	5,473	5,978
1929	8,420	114.6	109.4	8,820	8,660	4.73	4.64	186,638	6,438	6,419
1930	2,455	105.5	100.3	2,582	5,701	4.55	4.64	122,866	4,926	5,080
1931	−1,283	91.6	92.0	−1,277	653	4.58	4.57	14,289	3,162	2,800
1932	−3,424	83.9	87.3	−3,291	−2,284	5.01	4.80	− 47,583	1,781	1,501
1933	− 362	84.7	86.9	− 353	−1,832	4.49	4.75	− 38,568	1,783	1,680
1934	+ 977	94.4	94.6	975	311	4.00	4.25	7,318	2,531	2,654
1935	2,259	98.5	94.1	2,365	1,670	3.60	3.80	43,947	3,351	3,423
1936	4,273	99.1	94.7	4,472	3,419	3.24	3.42	99,971	4,531	4,599
1937	4,685	105.8	104.2	4,757	4,615	3.26	3.25	142,000	5,444	5,482
1938	2,289	99.0	104.2	2,175	3,466	3.19	3.23	107,307	3,975	4,753
1939	5,005	97.6	102.8	4,752	3,464	3.01	3.10	111,742	4,577	4,847
1940	6,447	99.2	104.3	6,131	5,442	2.84	2.93	185,734	6,108	6,400
1941	9,386	108.4	108.2	9,403	7,767	2.77	2.81	276,406	7,676	8,305
1942	9,433	119.2	113.0	9,950	9,677	2.83	2.80	345,607	4,702	9,758
1943	10,363	121.3	113.0	11,124	10,537	2.73	2.78	379,029	3,761	10,460
1944	9,928	122.3	113.0	10,745	10,935	2.72	2.73	400,549	5,348	10,912
1945	8,939	123.8	114.0	9,707	10,226	2.62	2.67	383,096	7,134	10,543
1946	12,539	140.7	125.0	14,114	11,911	2.53	2.58	461,667	12,393	12,195
1947	18,800E	178.0E	157.8E	18,951	16,533	2.61	2.57	643,307	17,700E	16,009
1948:										
1st Half	16,500F	193.3F	165.5F	19,172	19,062	2.96F	2.74	695,693		17,110F

*In millions of dollars. §Department of Commerce series. †BLS indexes, 1935-39 = 100. ‡Moody's Investors' Service.

E = Institute Estimate. F = Institute Forecast.

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TABLE I.—PRODUCERS' DURABLE EQUIPMENT, CORPORATE PROFITS, AND PRICES

other uncertain points of economic theory. It shows for example that bank credit deflation as encouraged by the Federal Reserve Board in 1920-21, 1929-32, and 1937-38 has an important three-way adverse effect on business which is delayed six months. First, a change in the long-term interest rate lowers the capitalization of current profits. Secondly, monetary deflation almost immediately affects profits adversely. Thirdly, as a result of increasing unemployment and consequent increase in productivity (decrease in unit money wage cost) nonfarm prices drop more rapidly than prices of metals and metal products. In consequence, the demand for investment goods collapses about six months after the Reserve Board has initiated deflationary policies. Because of the six-months lag the Federal Reserve Board is thus never actually in control.

Although institutional conditions would favor the use of an average of short- and long-term interest rates, durable equipment expenditures then differ substantially from the theoretical investment as shown by Column 9 of Table II. The ratios of actual to theoretical expenditures for producers' durable equipment range from 97.7 per cent in 1935 to 185.0 per cent in 1920. This is too wide a variation to accept, either for theoretical or practical forecasting purposes. Therefore, the formulation must be incorrect or there must be an important missing factor. Employing also the percentage of plant in use materially improves the correlation.

3. *Relation of Production to Productive Capacity*

For many years economists and business analysts have debated over the possibility of constructing a measure of productive capacity. Although recognizing the difficulties of defining capacity in an economy that can expand and contract both hours of work and the number of working shifts, years ago the Econometric Institute attacked the problem as follows: Form the annual differences of domestic producers' durable equipment expenditures minus reported depreciation and obsolescence; sum these differences from 1918 to date to obtain a measure of net capital formation; transform these expenditures to constant dollar figures by dividing by the BLS index of metals and metal products.

The resulting series is without starting point and scale but otherwise measures changes in the physical level of plant assets. If one assumes that technological changes are reflected in the prices of the goods, the index may also be taken as a measure of changes in productive capacity. Then by fixing any two points, it can be transformed to measure the capacity in terms of any comprehensive production index such as the Federal Reserve Board Index of Industrial Production. The

TABLE II

Effects of Capacity Squeeze

	(1) Producers Durable Equipment $ Mills.	(2) Capitalized Relative Profits	(3) F (Ratio Prod. to Capacity)	(4) Col. (2) × Col. (3)	(5) 0.176 Col. (4)	(6) Calculated Producers' Durable Equipment $ Mills.	(7) Col. (1) ÷ Col. (6)	(8) .014 Col. (2) + 3200	(9) Col. (1) ÷ Col. (8)
1920	5,464	107,500	106.0	114,100	2,008	4,612	1.185	4,705	116.1
21	3,413	40,800	82.0	33,400	588	3,192	1.070	3,771	90.5
22	3,531	41,700	85.7	36,700	646	3,250	1.086	3,784	93.3
23	4,973	109,400	100.0	109,400	1,925	4,529	1.098	4,732	105.1
24	4,655	115,200	93.5	107,500	1,892	4,496	1.035	4,813	96.7
25	5,089	134,800	96.0	128,200	2,256	4,860	1.047	5,087	100.0
26	5,485	164,400	102.5	168,100	2,959	5,563	.986	5,502	99.7
27	5,095	157,500	99.0	155,800	2,742	5,346	.953	5,405	94.3
28	5,473	166,200	96.0	159,800	2,812	5,416	1.011	5,527	99.0
29	6,438	180,000	102.5	184,900	3,254	5,858	1.099	5,720	112.6
30	4,926	122,000	85.8	104,500	1,839	4,483	1.099	4,908	100.4
31	3,162	15,500	78.3	12,100	213	2,817	1.122	3,417	92.5
32	1,781	−55,200	70.7	−39,100	−688	1,916	.930	2,427	73.4
33	1,783	−44,400	73.8	−32,400	−570	2,034	.877	2,578	69.2
34	2,531	8,800	78.3	6,900	121	2,725	.929	3,323	76.2
35	3,351	53,750	85.5	46,900	825	3,429	.977	3,953	84.8
36	4,531	124,200	91.6	113,900	2,005	4,609	.983	4,939	91.7
37	5,444	174,500	98.5	172,000	3,027	5,631	.967	5,643	96.5
38	3,975	131,600	84.4	111,100	1,955	4,559	.872	5,042	78.8
39	4,577	138,500	87.3	120,900	2,128	4,732	.967	5,139	89.1
40	6,108	232,000	95.0	220,100	3,874	6,478	.943	6,448	94.7
41	7,676	346,000	125.0	433,000	7,621	10,225	.751	8,044	95.4
42	4,702	430,000	130.0	559,000	9,838	12,442	.378	9,220	51.0
43	3,761	468,000	135.0	631,500	11,114	13,718	.274	9,752	38.6
44	5,348	492,000	120.0	590,100	10,386	12,990	.412	10,088	53.0
45	7,134	472,000	89.2	421,000	7,410	10,014	.712	9,808	72.7
46	12,393	558,000	96.0	536,000	9,434	12,038	1.029	11,012	112.5
47	17,500								

Notes: See bottom of facing page.

Econometric Institute fixed these points by assuming that in the peak periods of activity in 1919 and in the early part of 1923, production was at a rate equal to 95 per cent of capacity. The ratio of production to capacity was then computed for each year.

In the case of plant buildings, the approach presented here is not adequate. Buildings continue in use long after they have been written off and thus form part of productive capacity.[10] For measuring capacity in terms of plant building, it is preferable to depreciate buildings according to life tables rather than reported depreciation and obsolescence. This procedure was used in the consideration of the demand for industrial construction. It was also necessary to introduce a time trend to measure increasing efficiency of use of floor space.

4. *Relation of Investment in Durable Equipment to Per Cent of Operation*

It was found that there was a very high correlation between the residuals of Column 7 of Table II and the ratio of production to capacity for the year ending three months previous. There was also a good correlation for six months previous, but not as good as for three months. The reason for the shortness of the lead may be that producers reach their decisions on the orders in hand rather than on the production of the day. This would fully account for the difference in leads since new orders precede production by about three months.

One very interesting point is the acceleration of investment in producers' durable equipment which takes place when the ratio of the Federal Reserve Board Index to productive capacity approaches .85. At this point producers are generally short of equipment and literally pour out new orders for equipment. As production drops below 80 per cent of capacity the relation appears to be linear.

A few further points can be emphasized. It will be noted that in 1920-24 investment in producers' durable equipment generally exceeded the theoretical level by an average of nearly 10 per cent. This was the period during which shortages arising from World War I

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[10] It is, of course, true that some equipment continues in use long after it has been fully depreciated. However, the amount is quite small in comparison to the buildings remaining in use.

Column 2: (Corporate Earnings × Prices of Nonfarm Products) ÷ (.75 AAA Bond Yields + Commercial Paper Rates) (Prices of Metals and Metal Products)
Column 3: .60 Federal Reserve Board Index of Industrial Production (3 mos. previous) + .41 when ratio is *L*.80 and an exponential function when ratio is 780.
Column 4: Column (2) × Column (3).
Column 5: .0176 Column (4).
Column 6: Calculated Producers' Durable Equipment = Column (5) + 2604.
Column 8: .014 Column (2) + 3200.
Column 9: Ratio of Column (1) to Column (8).

were made up. A divergence of about the same amount developed in 1929, 1930, and 1931. This last may be a real divergence or it may be due to slight error involved in splicing statistical indexes. For example, if the splice in expenditures for producers' durable equipment should be such that 1929, 1930, and 1931 values were about 10 per cent lower, an almost perfect fit would be obtained by adding a time trend which would slope gradually downward throughout its course.

Such a time trend would not be at all surprising since the use of indexes would be expected to lead to some long-term bias that could be corrected only by the use of a residual time trend.

In any event the fit between actual and calculated demand for producers' durable equipment is extraordinarily close whether one uses the first approach, involving only the long-term interest rate or the second, involving an average of the long- and short-term rates. This is especially true when one considers that the variation from bottom to top is about 1,000 per cent or ten times.

The demand for private producers' plant construction may be as closely forecast by either the first or the second approach if the "cost of construction" is substituted for prices of metals and metal products. Here the second approach gives slightly better results.

Finally, in closing, the writer wishes to emphasize that the formulation presented is based on factors or conditions in hand six months before the development of the actual expenditures for producers' durable equipment. Thus it provides a basis for scientific forecasting of this highly variable portion of the gross national product. It has been the use of this approach which has enabled the Econometric Institute to differ with many others during the past ten years and each time to come up with the correct forecasts of the trends of industrial production and income. It was the main reason why the writer forecast a Federal Reserve Board Index of Industrial Production of 171 for the first full postwar year and full employment and again why he forecast rising production, income, and employment in the fall and winter of 1946-47 when bearish forecasts were sweeping the world.

THE OPTIMUM RATE OF INVESTMENT, THE SAVINGS INSTITUTIONS, AND THE BANKS

By Homer Jones
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The banks and savings institutions play a vital role in determining the adequacy of our rate of total investment. Superficially viewed a sizable portion of the savings of the country become liablities of the banks and savings institutions and these institutions in turn have the function of making these funds available for investment. Investment less than the amount which people wish to save at high employment is one of the most useful explanations of periodic or chronic or sporadic inadequacy of total production, employment, and income. Successful operation of the economic system depends upon someone, either private investors or governments, attempting to invest, i.e., provide savings outlets, in an amount equal to the amount which people wish to save at high employment. It thus seems reasonable to inquire whether inadequacy of investment may follow in some measure from inadequacy of the banks, savings associations, and insurance companies in making funds available for investment. Do the institutions in a significant sense impound savings and prevent them from flowing into investment? In order to answer this question we have to consider briefly just how the institutions must operate if optimum investment, i.e., investment equal to the amount which the public wishes to save at high employment, is to be maintained. As a first approximation we may say that the banks and savings institutions must invest an amount equal to the amount which the public wishes to put in them at high employment. If the rate at which the public wishes to put funds in these institutions at high employment decreases, it is imperative that their rate of investment should decrease for otherwise inflation will result. If the rate at which the public wishes to put funds into them at high employment increases, their rate of investment must increase if unemployment and/or deflation are to be avoided. If under conditions of underemployment the public wishes to put funds into these institutions at a greater rate than it would at high employment, it is imperative that the institutions invest at this greater rate if progressive declines in employment and/or prices are to be avoided.

While the basic problem which we are considering is maintenance of a rate of investment equal to the rate at which people want to save at high employment, and while the intermediary financial institutions play an important role in determining the volume of investment, employment, and savings, it is not really accurate to think of the funds which the public wishes to put into them or which it succeeds in placing with them as a portion of savings. The rate at which the public wishes to or does put funds into these respective institutions reflects what they wish to do or do with their total assets rather than what they wish to do or do with their total current savings. They may wish to put funds into these institutions at a rate greater than the rate of total current savings or than the rate which would prevail under conditions of high employment. Satisfactory operation of the economic system requires that the rate of investment of the intermediary institutions be adjusted to the rate at which people wish to put funds into them irrespective of the relation of the latter to the rate of saving.

This paper is devoted primarily to an examination of the historical record of the financial institutions in order to add to our understanding of wherein they have failed or succeeded in contributing to optimum investment. But it should be recognized in advance that the light which can be cast on this question by historical statistics is limited. Technique for determining what would have been the optimum rate of total investment for any past period is not very accurate. The difficulties of determining the rate of acquisition of assets by the intermediary financial institutions which would have contributed most effectively to high employment production and income are yet greater.

Possibility of measuring directly the adequacy of the investments of the institutions is distinctly different for the commercial banks from what it is in the case of the life insurance companies, mutual savings banks, and other savings institutions. The distinction lies in the fact that with the savings institutions the deposits limit investments whereas with the commercial banks investments precede deposits. Accordingly, the investment record of the savings institutions may be in part judged by the extent to which these institutions have increased or reduced their cash balances. A rough standard of effectiveness of the operation of the savings institutions, e.g., the savings banks and the life insurance companies, in achieving optimum total investment is that they shall invest all the funds which are placed with them. They should not build up their cash balances at a greater rate than the rate at which their total funds are increasing. Of course the savings institutions could make some positive contribution to optimum investment if, whenever total investment were inadequate, they were to reduce their cash balances or borrow from the central bank.

But it is the commercial banks which bear the chief burden of achieving a rate of institutional investment which will result in the optimum rate of total investment. If the reserve authorities supply the commercial banks with adequate reserves or sufficiently reduce required reserve ratios, the banks technically have the capacity to achieve the optimum rate of total investment. They can initiate investment and thereby acquire deposits and increase savings, whereas the savings institutions must play a relatively passive role.

However, direct measurement of the extent of inadequacy of the investments of the commercial banks is problematical. The extent of excess reserves of the banks is no measure, for the amount of reserves may not be the optimum amount and the unused capacity of the banks to get reserves through borrowing from the central bank are just as significant as the actual unused reserves. This inability to measure the inadequacy or the investing of the commercial banks leaves us unable to measure the inadequacy of the investing of the intermediary financial institutions as a whole.

We have no straightforward way of measuring the inadequacy of the rate of asset acquisition of the commercial banks, and the cash balance data of the savings institutions are not a measure of the extent to which their rate of asset acquisition has differed from what it would have been at high employment. For the institutions as a whole and for the commercial banks we cannot talk about the exact amount of investment deficiency. We can only say that when large volumes of unemployment exist, a greater rate of investment by the institution would be desirable. In the case of the savings institutions, likewise, we cannot measure the rate at which they would appropriately invest at high employment and accordingly we cannot measure an investment deficiency. Their cash balance figures provide only a rough indication of the extent to which one segment of the economy is contributing to or participating in the instability of total investment.

The record of the flow of funds into the savings institutions and of their net rate of asset acquisition seems to me to provide no test of any theory of the level of employment or of the relation between savings and investment. Particularly since they are *ex post* figures they cannot by themselves throw any light on the validity of a theory which is primarily *ex ante* in concept.

Changes in the liquidity preferences of the public are an important aspect of fluctuations in employment, production, and income. When liquidity preferences increase, the public commonly desires to increase its deposits in the commercial banks and to increase its funds in the savings institutions. This phenomenon is basically a matter of the pattern of assets which the public wishes to hold rather than of the use which it wishes to make of its current savings. To the extent that the public wishes to hold its assets in the form of liabilities of the intermediary financial institutions, total investment and employment can be maintained if the institutions acquire assets correspondingly. When the commercial banks fail to acquire assets at the rate people wish to make deposits, there is no direct measurement of the inadequacy since because of this failure to acquire assets the public simply fails in its attempt to build up its balances. But in the case of the savings institutions, their failure to acquire assets appropriately is to an extent reflected by their increased holdings of cash.

Disposition of Personal Savings

But before considering the record of the institutions in using the funds which they acquire it may be worth while to look at the rate at which funds have flowed to them in relation to the volume of net savings. For the period since 1929 we have reasonably useful data for the

TABLE I

DISPOSITION OF PERSONAL SAVING, 1929-47

(Millions of dollars)

	Net Flow of Funds to:				
Year	Insurance Companies and Savings Banks*	Four Types of Savings Institutions†	Personal Saving	Ratio (1) to (3)	Ratio (2) to (3)
	(1)	(2)	(3)	(4)	(5)
1947‡	4,280	6,980	11,100	38.6%	62.9%
1946	4,688	9,389	14,758	31.8	63.6
1945	5,306	12,424	29,014	18.3	42.8
1944	4,485	10,166	35,594	12.6	28.6
1943	3,705	7,234	29,991	12.4	24.1
1942	2,274	3,065	25,362	9.0	12.1
1941	1,803	2,303	9,760	18.5	23.6
1940	1,774	2,524	3,691	48.1	68.4
1939	1,757	2,250	2,701	65.0	83.3
1938	1,439	1,446	952	151.2	151.9
1937	1,559	2,144	3,934	39.6	54.5
1936	1,718	2,405	3,580	48.0	67.2
1935	1,649	2,352	1,758	93.8	133.8
1934	1,324	2,045	— 247	§	§
1933	— 147	—1,845	—1,181	§	§
1932	— 57	—4,501	—1,389	§	§
1931	1,191	—1,881	1,824	65.3	§
1930	1,475	1,016	2,899	50.9	35.0
1929	1,087	1,432	3,723	29.2	38.5

* Annual changes in reserves of life insurance companies, and in deposits in mutual savings banks. End of year figures.

† Life insurance companies, mutual savings banks, savings and loan associations, and savings departments of commercial banks. Data for the latter two are, respectively, changes in private share capital of savings and loan associations, and in time deposits of individuals, partnerships and corporations in commercial banks. End of year figures.

‡ Preliminary.

§ Personal saving negative, or amount negative, or both.

Sources: For mutual savings banks, data were obtained from the Federal Reserve System; for all other savings institutions, the Federal Savings and Loan Insurance Corporations; for personal savings, the Department of Commerce.

rate of saving and the rate at which the institutions have acquired funds. For earlier periods it is my opinion that the savings data do not permit any analysis of the relation to savings of funds flowing into the institutions. Table I shows the relation of net acquisitions of funds by the savings institutions to personal savings for the period 1929-47. In the years 1930-33 only the figures for the life insurance companies and the mutual savings banks can be used since those for commercial banks and savings and loan associations are greatly affected by institutional failures and not simply by inflow and outflow of funds. Acquisitions by the insurance companies and mutual savings banks increased from an amount equal to 29 per cent of personal savings in 1929 to 65 per cent in 1931. In 1934 when personal savings were negative these two classes of institutions continued to acquire funds. In the recovery years of 1935-37 acquisition of funds by all the savings institutions remained steady as the rate of saving increased greatly. When savings dropped by 3 billion dollars in 1938, acquisition of funds by the institutions remained relatively stable and was 50 per cent greater than savings. In the boom after 1938 savings increased much more rapidly than the fund acquisitions of the savings institutions. Thus the record of fifteen years shows the funds flowing into the savings institutions are greatest relative to personal savings in the years of smallest savings and of greatest unemployment. Seeing that the relatively greatest investment responsibility falls on the savings institutions at those times when maintenance of investment is most crucial, we may consider how well they seem to have been able to meet this responsibility.

Cash Holdings of Savings Institutions

It is reasonable to expect that the savings institutions will secularly increase their cash holdings in proportion to total funds. An appropriate function of the monetary authority is to supply this cash. But increases in cash holdings greater or less than the amount necessary to maintain a normal relation to total funds may be considered a contribution to the stability or instability of the economic system depending upon the timing of the deviation from normal.

The record of the life insurance companies and the mutual savings banks with respect to acquisition of funds and disposition of them is available on an annual basis for an adequate period. Monthly figures are not available for mutual savings banks but are available for life insurance companies since 1925. Table II shows the ratio of cash balances to net assets of the savings banks and life insurance companies, 1900 to 1946. A decline in proportion of assets of life insurance companies and mutual savings banks held as cash between 1903 and 1907 may be attributed in part to the criticisms and legal reforms directed against the

TABLE II

NET ASSETS AND CASH BALANCES OF LIFE INSURANCE COMPANIES AND MUTUAL SAVINGS BANKS

(Millions of dollars)

End of year	Life Insurance Companies			Mutual Savings Banks			Life Insurance Companies and Mutual Savings Banks		
	Cash* Balance	Net† Assets	Ratio of cash to net assets	Cash‡ Balance	Net§ Assets	Ratio of cash to net assets	Cash Balance	Net Assets	Ratio of cash to net assets
1946	774	45,597	1.70%	815	18,662	4.37%	1,589	64,259	2.47%
1945	780	42,197	1.85	610	17,021	3.58	1,390	59,218	2.35
1944	711	38,345	1.85	582	14,761	3.94	1,293	53,106	2.43
1943	875	34,851	2.51	796	13,024	6.11	1,671	47,875	3.49
1942	725	31,721	2.29	661	11,907	5.55	1,386	43,628	3.18
1941	877	29,291	2.99	795	11,808	6.73	1,672	41,099	4.07
1940	1,048	27,203	3.85	968	11,981	8.07	2,016	39,184	5.14
1939	929	25,496	3.64	814	11,852	6.87	1,743	37,348	4.67
1938	770	23,881	3.22	578	11,611	4.98	1,348	35,492	3.80
1937	726	22,376	3.24	545	11,650	4.68	1,271	34,026	3.74
1936	842	20,999	4.01	563	11,573	4.86	1,405	32,572	4.31
1935	829	19,217	4.31	534	11,231	4.75	1,363	30,448	4.48
1934	613	17,730	3.46	518	11,119	4.66	1,131	28,849	3.92
1933	451	16,678	2.70	471	11,016	4.28	922	27,694	3.33
1932	324	16,487	1.97	436	11,050	3.95	760	27,537	2.76
1931	179	16,325	1.10	418	11,163	3.74	597	27,488	2.17
1930	152	15,634	.97	346	10,743	3.22	498	26,377	1.89
1929	147	14,704	1.00	260	10,150	2.56	407	24,854	1.64
1928	141	13,604	1.04	234	9,847	2.38	375	23,451	1.60
1927	133	12,292	1.08	250	9,349	2.67	383	21,641	1.77
1926	117	11,058	1.06	250	8,716	2.87	367	19,774	1.86
1925	124	9,841	1.26	243	8,167	2.96	367	18,008	2.04
1924	127	8,850	1.44	246	7,639	3.22	373	16,489	2.26
1923	120	8,062	1.49	236	7,135	3.31	356	15,197	2.34
1922	126	7,333	1.72	227	6,688	3.42	353	13,961	2.53
1921	119	6,726	1.77	222	6,196	3.58	341	23,922	2.64
1920	125	6,330	1.97	219	5,829	3.76	344	12,159	2.83
1919	112	5,844	1.92	227	5,396	4.21	339	11,240	3.02
1918	86	5,560	1.55	228	4,995	4.56	314	10,555	2.97
1917	104	5,044	2.06	236	4,815	4.90	340	9,859	3.45
1916	110	4,671	2.35	241	4,679	5.15	351	9,350	3.75
1915	114	4,338	2.63	223	4,434	5.03	337	8,772	3.84
1914	95	4,131	2.30	202	4,286	4.71	297	8,417	3.53
1913	73	3,938	1.85	187	4,183	4.47	260	8,121	3.20
1912	67	3,763	1.78	170	4,020	4.23	237	7,783	3.05
1911	75	3,567	2.10	169	3,849	4.39	244	7,416	3.29
1910	71	3,330	2.13	166	3,709	4.48	237	7,039	3.37
1909	72	3,150	2.29	160	3,539	4.52	232	6,689	3.47
1908	72	2,919	2.47	156	3,365	4.64	228	6,284	3.63
1907	67	2,658	2.52	144	3,305	4.36	211	5,963	3.54
1906	70	2,612	2.68	134	3,208	4.18	204	5,820	3.51
1905	77	2,432	3.17	138	3,055	4.52	215	5,487	3.92
1904	104	2,263	4.60	137	2,902	4.72	241	5,165	4.67
1903	111	2,063	5.38	129	2,771	4.66	240	4,696	5.11
1902	96	1,925	4.99	125	2,659	4.70	221	4,584	4.82
1901	89	1,769	5.03	127	2,532	5.02	216	4,301	5.02
1900	75	1,620	4.63	121	2,405	5.03	196	4,025	4.87

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large cash holdings of the life insurance companies, particularly the Armstrong Investigation in New York in 1905 and the resulting legislation of the following year. The decline in life insurance cash from 111 million dollars in 1903 to 67 millions in 1907 was timed to contribute to the investment boom of that period.[1] From 1908 to 1912 the two types of institutions were making a net contribution to investment, supporting the booms of 1908-10 and 1912. From 1913 to 1915 there was a rise in amount of cash held and in the cash ratio coinciding with the 1913-15 general business decline. From 1915 to 1928 there was an almost constant net contribution to investment by these institutions as the proportion of assets in cash declined steadily from 3.5 per cent to little more than 1.5 per cent.

But when the great general shift in rate of investment came at the end of the twenties and the beginning of the thirties the savings banks and life insurance companies reinforced that investment slump. They invested funds at a lower rate than they received them and built up the amount of cash held and the proportion of their assets held as cash. The proportion of assets held as cash increased steadily from the 1.6 per cent level of 1928-29 to 3.3 per cent at the end of 1933 and to 4.5 per cent at the end of 1935. The turning point for the cash ratio in this case came two years after the upturn of the cycle. The life insurance companies and the institutions as a whole made a net contribution to the boom of 1936-37 and contributed to the investment contraction of the subsequent period. In the 1941-46 period the two types of institutions contributed to the overexpansion of outlets for savings by reducing cash holdings from 5 per cent of assets to about 2.5 per cent.

The monthly data which are available for the insurance companies alone since 1925 show a still more definite contribution to investment boom and collapse. From 1925 to 1926 the insurance companies were reducing their cash and very rapidly reducing their holdings of government bonds, thus contributing to the boom of that period. In the 1926-27 period of recession the cash ratio increased and the rate of disposition of government bonds declined. From 1927 to the middle of 1929 the trend of the cash ratio was downward and government securities were rapidly sold, particularly in the first half of 1928. From

[1] In this and following statements business cycle turning points are taken from Burns and Mitchell, *Measuring Business Cycles*, p. 78.

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* Cash in offices and banks. Source: 1900-46, *The Spectator*, Life Insurance Yearbook.

† "Net assets" is total admitted assets less policy loans and premium notes and net deferred and unpaid premiums. Source: See note *, *supra*.

‡ Cash, cash items, due from banks and reserve with reserve agency. Sources: 1900-37, *Annual Reports* of the Comptroller of the Currency; 1938-46, *Mutual Savings Banking* (formerly the *Month's Work*), National Association of Mutual Savings Banks; 1900-35, end of year figures estimated by interpolation.

§ Sources: See note ‡, *supra*.

TABLE III

PROPORTION OF CIRCULATING MEDIUM HELD BY LIFE INSURANCE COMPANIES AND MUTUAL SAVINGS BANKS, ANNUALLY, 1900–1946

(Millions of dollars)

End of year	Cash held by insurance companies*	Cash held by savings banks†	Cash held by both	Circulating medium‡	Ratio (1)/(4)	Ratio (2)/(4)	Ratio (3)/(4)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
1946	774	815	1,589	110,044	.70%	.74%	1.44%
1945	780	610	1,390	102,341	.76	.60	1.36
1944	711	582	1,293	90,435	.79	.64	1.43
1943	875	796	1,671	79,640	1.10	1.00	2.10
1942	725	661	1,386	62,868	1.15	1.05	2.21
1941	877	795	1,672	48,607	1.80	1.64	3.44
1940	1,048	968	2,016	42,270	2.47	2.29	4.77
1939	929	814	1,743	36,194	2.57	2.25	4.82
1938	770	578	1,348	31,761	2.42	1.82	4.24
1937	726	545	1,271	29,597	2.45	1.84	4.29
1936	842	563	1,405	30,999	2.72	1.82	4.53
1935	829	534	1,363	27,032	3.07	1.98	5.04
1934	613	518	1,131	23,114	2.65	2.24	4.89
1933	451	471	922	19,817	2.28	2.38	4.65
1932	324	436	760	20,397	1.59	2.14	3.73
1931	179	418	597	21,882	.82	1.91	2.73
1930	152	346	498	24,572	.62	1.41	2.03
1929	147	260	407	26,366	.56	.99	1.54
1928	141	234	375	26,674	.53	.88	1.41
1927	133	250	383	26,430	.50	.95	1.45
1926	117	250	367	25,548	.46	.98	1.44
1925	124	243	367	26,059	.48	.93	1.41
1924	127	246	373	24,594	.52	1.00	1.52
1923	120	236	356	22,870	.52	1.03	1.56
1922	126	227	353	22,044	.57	1.03	1.60
1921	119	222	341	21,091	.56	1.05	1.62
1920	125	219	344	22,255	.56	.98	1.55
1919	112	227	339	22,469	.50	1.01	1.51
1918	86	228	314	19,679	.44	1.16	1.60
1917	104	236	340	16,959	.61	1.39	2.00
1916	110	241	351	14,813	.74	1.63	2.37
1915	114	223	337	12,626	.90	1.77	2.67
1914	95	202	297	11,509	.83	1.76	2.58
1913	73	187	260	11,307	.65	1.65	2.30
1912	67	170	237	10,958	.61	1.55	2.16
1911	75	169	244	10,648	.70	1.59	2.29
1910	71	166	237	10,178	.70	1.63	2.33
1909	72	160	232	9,719	.74	1.65	2.39
1908	72	156	228	9,277	.78	1.68	2.46
1907	67	144	211	9,334	.72	1.54	2.26
1906	70	134	204	9,418	.74	1.42	2.17
1905	77	138	215	8,981	.86	1.54	2.39
1904	104	137	241	82,587	1.26	1.66	2.92
1903	111	129	240	7,662	1.45	1.68	3.13
1902	96	125	221	7,328	1.31	1.71	3.02
1901	89	127	216	6,875	1.29	1.85	3.14
1900	75	121	196	6,175	1.21	1.96	3.17

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the middle of 1929 to the middle of 1932 the amount of cash held increased and the ratio of cash to assets moved gradually upward from 0.6 per cent to over 1 per cent. After the middle of 1932 cash holdings increased much more rapidly, reaching 3 per cent in 1933, 4 per cent in 1934, and 5 per cent in early 1936. Thus they held increasing proportions of their assets in cash during this long period of underinvestment. The cash ratio reached a peak in February, 1936, thus lagging three years behind the upturn of the general cycle. In 1936-37 the absolute amount of cash and the proportion of their assets in cash decreased, thus contributing to that boom. In 1937-38 they again increased cash holdings and the proportion of their assets which they held in cash, reinforcing the collapse of that period. Thus from 1931 to the end of 1935 the insurance companies were clearly a disinvesting force. As the proportion of net assets held as cash increased from 0.5 per cent to 4 per cent they contributed to the inadequacy of investment of the period. Then they reinforced the investment boom of the first half of 1937 and the inadequacy of investment in 1938. From 1941 to 1946 there was an inflationary contribution to savings outlets as the trend was downward in proportion of assets held as cash from 3.5 per cent to less than 1.5 per cent.

Proportion of Cash Held by Savings Institutions

Another aspect of investment policies of the savings institutions is the proportion of the circulating medium of the country held. The proportion of demand deposits and currency held by the life insurance companies and mutual savings banks declined rapidly from 1904 to 1907 as the business cycle moved upward and moved up as the cycle turned down in 1907-08. (See Table III.) From 1909 to 1913 the proportion of circulating medium held fell slightly, thus contributing somewhat to the booms of 1908-10 and 1912-13, but not reinforcing the business decline of 1910-12. It moved up in 1913-16, reinforcing the business decline of 1913-14, and down in 1916-20, reinforcing the inflationary tendencies of the period. During the twenties there was a slight downward tendency of the proportion, thus making some contribution to the general investment boom of the period. In the twenties the savings institutions held about 1.5 per cent of the demand deposits and currency of the country compared with 2.5 per cent in the prewar period. (See Table III.) After 1929 the proportion held rose steadily to 4.5 per cent in 1933 and 5 per cent in 1935. In the 1929-33 period circulating medium declined by a quarter while cash balances of the institutions doubled. During this period when the community in general was attempting to increase its cash balances but finding it impossible to do so, the intermediary institutions were succeeding in that attempt. Since placing funds in these institutions to a considerable extent satisfied the increasing liquidity preferences of the community in general, it is not to be wondered that they manifested a sort of quintessence of the general desire for liquidity.

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* See Note *, Table II.

† See Note ‡, Table II.

‡ Demand deposits adjusted, plus currency outside banks. Sources: 1900–41, *Banking and Monetary Statistics*, pp. 34–35; 1941–46, *Federal Reserve Bulletin*; 1900–22, end of year figures estimated by interpolation.

The failure of the savings institutions to invest is of course manifested in the relation of net changes in funds to net changes in cash. In 1929 the insurance companies and savings banks increased their cash holding to the extent of 3 per cent of their net fund acquisitions, in 1930, 6 per cent, and in 1931, 8 per cent. In 1932 they increased cash by a greater absolute amount than their funds increased. In 1933 they continued to increase cash while experiencing a net outflow of funds.

In the period 1930-35, inclusive, if the savings institutions had kept the ratio of cash to total assets which prevailed at the end of 1929, their investments would have been 799 million dollars more than was actually the case. In the period 1938-40, inclusive, their investment would have been 660 million dollars greater.

The record of nearly fifty years seems to show that the savings institutions have not been passive in the investment process. In general they have made a net contribution to investment at times when other forces likewise were contributing to investment expansion, while they have contracted investment on net when it was otherwise falling. Thus the operations of the intermediary institutions have played a substantial role in our failure to maintain that stable rate of investment which would equal the amount which people want to save at high employment.

In the light of this historical record and of the ideal of an optimum rate of investment for financial institutions we need to inquire what may be expected of the institutions in the future. Is it possible for them regularly to invest amounts corresponding to the amount which the public would like to put in them? Would it be possible for the savings institutions to reduce their cash balances at times when total investment otherwise falters? Or are they likely in the future as in the past to reinforce periodic investment inadequacy by failing to invest amounts equal to the funds which they receive? Some light may be thrown on these questions by consideration of the reasons why the institutions have contributed to economic fluctuations in the past. We can then examine whether these reasons may operate again in the future and, if they will, what might be done to make it in the interest of the institutions to operate differently.

This paper does not attempt to deal with all the forces which cause the rate of investment of the savings institutions to deviate from the rate of acquisition of funds. Certainly it does not attempt to deal with all the factors causing the rate of investment by the financial institutions as a whole to deviate from the optimum. Most of the public policies which are designed to reduce the severity of depression would have as an aspect maintenance of an adequate rate of investment by the intermediary financial institutions. Policies which involve increasing the deficits of the government as an antidepression measure mean an increase in assets of a type which the financial institutions will be willing to buy, and/or a reduction of the amount of funds which the public wishes to put into the institutions. Adequate management of the public debt will have as one of its chief aspects its effect upon the volume of that debt held by the institutions or the volume of funds flowing to them. If the fiscal policies and debt management policies of the past had been more enlightened, the rate of investment of the financial institutions would have been more satisfactory. The cash balance record of the institutions which we have examined would have had a quite different character. But it is not proposed here to give any attention to the broad expanse of policies which may affect the rate of investment of the financial institutions. We here consider only those factors which seem to pertain to the internal structure of the institutions themselves.

Causes of Institutional Hoarding

We may distinguish a number of different factors which have influenced the intermediary financial institutions on occasion to fail to invest at the rate which would have been most conducive to high employment. These factors help to explain both the failure of the savings institutions to invest at the rate at which they receive funds and the failure of the demand deposit banks to invest at a rate conducive to high employment: (1) inadequate funds for meeting withdrawals have been provided by the central bank; (2) inadequate reserves have been supplied to institutions to permit expansion; (3) an oligopoly of financial institutions may have impeded interest rate reductions; (4) an optimism concerning the future of interest rates has sometimes been detrimental; (5) the policies of the government supervisors and examiners have impeded investment.

In the post-1929 period the liquidity factor was no doubt of considerable importance in reducing the rate of investment or causing net disinvestment on the part of the intermediary financial institutions. If individual institutions had been supplied by the central bank with adequate funds to meet net withdrawals not only would the immediately resulting liquidations have been avoided but anticipatory liquidations might not have been necessary. A considerable amount of the building up of cash balances by the institutions was upon a contingency basis. If an adequate liquidity policy had existed on the part of the central bank, the contingency motive would have been removed and investment would have benefited accordingly.

It is probably commonly thought that conditions have now changed in such a way that liquidity will not be a problem in any future depression either actually or in the calculations of the managers of financial institutions. This view is based primarily upon the large volume of high-grade securities, particularly those of the federal government, which is held by the institutions. It is assumed that in any future crisis we will have a monetary policy appropriate to maintaining the price of these securities or that enough of the government securities will be of a very short term so that liquidity will never be a problem. But while this may be true of the institutions as a whole, the question remains whether the investment process is not hampered by a system which depends upon individual institutions planning to have necessary volumes of particular types of assets in case of crisis or panic. In actual practice when great shifts or withdrawals of funds from the institutions occur, some individual institutions will find themselves with inadequate volumes of the types of assets which provide liquidity. I believe that we will be making a desirable contribution to maintaining adequate investment if, at times of its inadequacy, all the intermediary financial institutions which are sound enough to remain in business can borrow freely from the central bank upon a basis of their general credit.

This paper cannot appropriately treat the question of reserve policy of the central bank. But it is necessary to mention the close relation of this subject to the adequacy of investment by the intermediary institutions. Inadequate reserve policy has contributed to the inadequate investments of the institutions in the past and may do so again.

A third factor which may in the past have been detrimental to the rate of investment of the intermediary institutions has been an absence of adequate competition among them. Individual institutions have refused to bid up the price of securities for the reasons common to behavior of oligopolists in general. The considerations of monopoly or oligopoly may also have applied to a considerable extent in connection with reduction of interest on loans as a means of expanding the investments of individual institutions. Quite aside from the question of the direct effect of lower interest rates on total private investment, it would seem that in the absence of these situations of monopoly or oligopoly the cash balances of the savings institutions would not have increased so greatly. At many points of government policy regarding the financial institutions there are opportunities to further competition and limit monopoly or oligopoly.

A fourth factor explaining inadequacy of the rate of investment of the intermediary institutions has been their optimism regarding the future of interest rates. They have preferred avoiding investment to paying high prices for long-term securities or lending for long terms at low interest rates because they thought the risk of a rise in interest rates was not compensated by the possible interest income. From 1921 to 1932 inclusive yields on long-term securities (Moody's Aaa) never fell below 4 per cent and the cash ratio of the institutions was never above 3 per cent. (See Table IV.) In the 1934-41 period long-term interest rates were continuously below 4 per cent and the cash ratio of the institutions was never below 3.5 per cent. In the years 1942-46 the cash ratio has fallen even though interest rates have remained low. This war and postwar phenomenon evidently reflects the great supply of short-term government securities and the fact that the institutions had finally adjusted themselves to the idea that the low level of interest rates was a more or less permanent situation. The period 1930-33 taken by itself does not seem to conform to the idea that low interest rates together with anticipation of higher interest rates are a cause of the failure of financial institutions to invest. In that period the cash ratio steadily rose though the yield on high-grade securities did not fall below the level of preceding years of prosperity. Thus it appears that the increase in cash ratio during that period of declining investment was primarily on a basis of precautionary motives and not as a result of low interest rates and anticipation of higher interest rates. Nevertheless, the experience of these years does not disprove the idea that low interest rates together with anticipations of higher rates may at times inhibit institutional investment. If the institutions at that time had been given sufficient liquidity safeguards so that they would not accumulate cash for precautionary reasons they might have pushed interest rates down to a level where they would have refrained from forcing them lower because of their anticipations of an early increase.

From 1934 or 1935 through 1940 or 1941 the conditions which might cause abnormal cash holdings for precautionary reasons had disappeared and the large cash holdings appear to be best explained by the anticipation that interest rates would rise. During the ten years from 1931 through 1940 there is a decided negative correlation between the yield on high-grade securities and the proportion of institutional assets held as cash. It has been argued that this type of consideration does not help to explain inadequate investment because if optimistic expectations of the future prevail they will result in real investment by those holding such expectations. But it may be appropriate to make a distinction between the expectations of the managers of the financial institutions and those of the businessmen. The former are concerned primarily with the future of the interest rate. The latter are concerned both with the future demand for their product and with the future of the interest rate. The optimistic views of the financial institutions re-

TABLE IV

CASH RATIOS AND INTEREST RATES, 1920–1946

Year	Ratio cash to net assets, insurance companies and savings banks*	Interest Rates		
		Short-term commercial paper†	Corporate Aaa bonds (Moody's)‡	Long-term government bonds§
	(1)	(2)	(3)	(4)
1946	2.18%	.81%	2.53%	%
1945	2.35	.75	2.62	1.66
1944	2.43	.73	2.72	1.92
1943	3.49	.69	2.73	1.98
1942	3.18	.66	2.83	2.09
1941	4.07	.54	2.77	2.05
1940	5.14	.56	2.84	2.26
1939	4.67	.59	3.01	2.41
1938	3.80	.81	3.19	2.56
1937	3.74	.94	3.26	2.68
1936	4.31	.75	3.24	2.65
1935	4.48	.76	3.60	2.79
1934	3.92	1.02	4.00	3.12
1933	3.33	1.73	4.49	3.31
1932	2.76	2.73	5.01	3.68
1931	2.17	2.64	4.58	3.34
1930	1.89	3.59	4.55	3.29
1929	1.64	5.85	4.73	3.60
1928	1.60	4.85	4.55	3.33
1927	1.77	4.11	4.57	3.34
1926	1.86	4.34	4.73	3.68
1925	2.04	4.02	4.88	3.86
1924	2.26	3.98	5.00	4.06
1923	2.34	5.07	5.12	4.36
1922	2.53	4.52	5.10	4.30
1921	2.64	6.62	5.97	5.09
1920	2.83	7.50	6.12	5.32

* End of year figures.

† Monthly averages, open-market rates in New York City on prime commercial paper, four to six months. Source: *Banking and Monetary Statistics*, p. 448, and *Federal Reserve Bulletin*.

‡ Monthly averages. Source: *Banking and Monetary Statistics*, p. 468, and *Federal Reserve Bulletin*.

§ Monthly averages, partially tax exempt U. S. Government bonds; before 1939, due or callable in twelve or more years; after 1939, due or callable in fifteen or more years. Source: See note † above.

garding the future of interest rates do nothing in themselves to achieve real investment. If the businessmen do not have optimistic views of future demand for their product, the optimistic views of the financial institutions regarding interest rates are a deterrent to investment rather than a help.

Equity Investment for Financial Institutions

This deleterious effect of optimism upon investment might be avoided in the future by a power which has recently been acquired and exercised by some of the intermediary financial institutions. During the past decade the life insurance companies and the mutual savings banks in a number of states have gained power to acquire and hold for rent both housing and other investment real estate. There has also been some expansion of their power to acquire corporate stocks. Such power in the hands of the financial institutions may permit them to operate more beneficially with respect to optimum investment. In the absence of such power their investments are dependent not only upon their own anticipations but upon those of others as well. We have seen that if their anticipations are more optimistic than those of the businessmen, investment will not take place when they can only make loans. But if they can invest in equities, the optimistic view of the future, instead of being an impediment to investment, may result in investment. With this power, a belief on the part of the institutions in a higher future productivity of capital and a higher future level of interest may help investment, not impede it. I do not know whether you find this recent development shocking and radical or not. It does not appear, however, nearly so shocking as government provision of funds for the financing of business, or real investment by government in fields extraneous to the customary areas of government activity.

It is not the intention of this paper to argue that this new power of the financial institutions will provide a complete assurance that the optimum rate of investment will be maintained. I wish only to suggest that it may be able to make a considerable contribution in this direction and that it deserves the serious considerations of economists, legislators, and the managers of financial institutions.

When they are restricted to investment in debts the very fact that the managers of financial institutions have favorable anticipations of future capital productivity and interest rates may result in less investment than would take place if they had less favorable expectations. It appears to me that this is a major explanation of the building up of cash balances and failure to use excess reserves by the financial institutions in the past. Power to invest in equities would seem to be an effective way to avoid this situation and give a stimulus to investment at times when it is most needed. If the financial institutions have an optimistic view of the future and can invest in equities, investment will be made which otherwise would not take place. Such investment may be either in business equities such as common stocks or in real property such as the housing projects which the insurance companies have undertaken. Business managers whose view of the future is so pessimistic that they will not be willing to borrow may be willing to issue stock. Financial institutions which have the power to invest in debts, in business equities, and in real property will extend their investments in each so that the anticipated rate of return on each, adjusted for the evaluation of the respective risks involved, will be equated. In the making of real investments, as the life insurance companies and savings banks are doing in their housing developments, financial institutions are not dependent upon the anticipations of any other party.

When debts, equities, and tangible property are all available as outlets for the funds of financial institutions there can be no rational basis for institutional accumulation of cash balances or excess reserves except that they take such a pessimistic view of the future that the calculated risks are uncompensated for by anticipated return in any of the three avenues of investment. When this situation exists it would appear that the institutions would be doing all within their power to achieve the optimum rate of investment.[2]

The equity investments which the intermediary financial institutions have been making and those which they may make if they are given the power to engage in all that they see to be in their interest, should create no difficulty from a liquidity standpoint. In the first place it is not to be expected that by any means all the assets of all the institutions will consist of equities. Second, public policy should make it necessary for the institutions as a whole to experience withdrawals only when the liquidity preference of the public is decreasing, an occasion when it should be particularly propitious to dispose of equities. Finally, if institutions did have to meet withdrawals under conditions of sagging employment or increasing liquidity preference, the liquidity policy which we have outlined above as necessary in any case would save them from any embarrassment because of their holdings of equities.

Some may feel that the investment in equities by intermediary financial institutions which is now under way, and the extension of which I have suggested might be beneficial for the investment process, would be in the direction of a reversion to the condition of two decades ago when investment banking and demand deposit banking were rather closely tied together. It is not appropriate at this point to enter into a discussion of the desirability of the divorce which was required in 1933. I am inclined to think that the divorce, as opposed to the correction of some evils of the marriage, was a mistake. But the point here is that the proposals we are making have nothing to do with the matter. Under the old relation the intermediary financial institutions were tied to a process of marketing equities. The proposal here under consideration is one of acquiring equities for long-term investment. The currently developing practice, the extension of which I am here suggesting might have beneficial effects, may also be thought by some to constitute a movement toward the close relation between banking and industry which has prevailed in some of the countries of continental Europe. There is something to this though I think that the analogy is not sufficiently close that European experience can thrown any light on the merits of equity investments in our different institutional setting. By and large the continental system was not one of the intermediary financial institutions investing in equities for the long pull but rather one of floating and marketing securities.

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[2] This paper presents a case for cyclical benefits from equity investment. The secular detriments of excessive debt have been discussed by the author in the *Journal of Finance* for April, 1947.

Question may legitimately be raised concerning the managerial or entrepreneurial implications of institutional investment in equities. As the life insurance companies and the savings banks extend their housing developments and their other holdings of investment real estate, they become great landlords. They may become dominant factors in the construction industry. Is it desirable for the great financial institutions to become landlords and in effect engaged in the construction business? It is not feasible to enter into an extended discussion of this question here. There has been no substantial public objection to the movement as yet. If the institutions were to invest substantially in common stocks, there would be no necessity for a single institution to invest in more than a small portion of the stock of a single large business enterprise. Legal limits on the amount of the stock of a large corporation which might be owned by a single institution would seem to be appropriate. In the case of smaller business enterprises, rather large holdings by a single financial institution might be a small price to pay for a satisfactory new source of equity funds for small- and medium-sized business.

Inadequate investment by the financial institutions has resulted in part in the past from the activities of the government supervisors and their examiners. The supervisors have frequently exercised their influence to encourage collection of loans and sale of securities and to discourage expansion of investment, not because of present or anticipated liquidity problems, but because of the dim view which the supervisors have taken of the future. Supervisors should not reinforce gloomy views of the future returns and risks adhering to investment. Their anticipations should be those of reasonably high and stable employment. It is utterly foolish for the agents of a government which is attempting to facilitate high stable employment to operate on a different assumption in influencing the investments of financial institutions. The supervisors should recognize that they need to view the total effects of their operations. If they encourage disinvestment by a particular institution at a time when investment tends to sag they will thereby worsen the condition of all the institutions with which they are concerned. Not simply in the interest of general employment, production, and income, but in the interest of the welfare of the institutions with which they are concerned, the supervisors need to take the long-term and optimistic view of economic prospects. To the extent that the supervisors can adopt an appropriate view in this connection not only will they avoid positive encouragement of disinvestment and discouragement of investment but they will have a beneficial effect on the anticipations of the managers of the institutions. If the supervisors can contribute to a climate of opinion which is confident concerning the long-run prospects of investments they will have a beneficial effect upon the anticipations of the managers of the institutions and indeed of the managers of businesses.

A problem which becomes especially acute as the institutions undertake investment in equities is the valuation of assets by the supervisory authorities. Presumably any housing development or other real investment being made by the life insurance companies will be valued at amortized cost so long as its earnings prospects do not deteriorate greatly in relation to general economic prospects. Given the liquidity policy which we have outlined, this is the reasonable policy with respect to all assets of all the intermediary institutions. With this rule of valuation, which apparently now applies to a great portion of the assets of the institutions, the valuation problem will raise no impediment to extensive equity investment.

Conclusions. This paper has been initially concerned with the statistical record of the investments of the intermediary financial institutions in relation to the funds which have flowed to them—a flow which may be interpreted either as a portion of current savings or as adjustment of the pattern of assets. In general nothing extraordinary is to be found from examination of this liquidity preference of the financial institutions. They simply reflect in a concentrated form the liquidity preferences of the community in general plus their own.

The paper has then examined the problem of public policies which may enable the banks and savings institutions to contribute to an optimum rate of investment. It has considered how these institutions may find it in their own interest to help in the maintenance of a rate of investment equal to the rate at which the public wishes to save under conditions of high employment, production, and income. More narrowly these institutions are operating consistently with high employment when they make investments equal to the amount of funds which the public wishes to put into them at high employment or which the public wishes to put into them at the particular time concerned, whichever is greater. It is not particularly helpful to think of these funds which the public puts or wishes to put into the financial institutions as a portion of savings. They may fluctuate quite irrespective both of the amount which is being saved and of the amount which people would save at full employment.

To keep deviations from optimum investment reasonably low the intermediary institutions should be assured that they can receive from the central bank any funds they may need to meet withdrawals at times when investment tends to be inadequate. They must have adequate access to central bank credit to permit them to make all the investment which they are willing to make so long as investment tends to be below the optimum and inflation does not result. The policies of government supervisors of the institutions should be designed to stimulate institutional investment at times when total investment tends to be inadequate and certainly not to discourage it or to encourage disinvestment. Recently some intermediary financial institutions have been investing in equities. The extension of this power and practice may provide a very important means whereby the institutions can in their own profit-seeking interest make a substantial contribution to maintenance of optimum investment and thereby to high employment, production, and income.

THE DEMAND AND SUPPLY FUNCTIONS FOR LABOR

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The distinction must always be made between the logic of the analytical system implicit in *The General Theory* and the wealth of practical insight which frequently illuminates particular problems and provides the basis for policy recommendations.[1] A number of mathematical summaries have been formulated of the logic of the Keynesian model.[2] The system of equations presented by Lawrence R. Klein is typical.[3] The most distinctive contribution of the Keynesian logic clearly lies in the first two equations.[4] The last two equations, however, constitute the particular concern of this paper:

$$w = p\left(1 - \frac{1}{\eta}\right)y'(N)$$
$$N = F(w)$$

These two equations assert respectively that "the wage rate equals the marginal productivity of labor" and that the "supply of labor depends upon the money wage rate." The demand equation for labor is the ordinary marginal productivity theory equating the wage rate and the marginal revenue product of labor. The supply of labor for Keynes is perfectly elastic at the historically prevailing money wage rate up to the point of full employment, in contrast to the classical case in which the supply of labor is a function of the real wage rate. In both instances the equations apply to the total system.

Empirical evidence is irrelevant to the logic of a system of equations.

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[1] See the stimulating analysis of John Lintner, "The Theory of Money and Prices," in *The New Economics*, edited by Seymour E. Harris (Alfred A. Knopf, 1947), pp. 503-537.

[2] Arthur Smithies, "Effective Demand and Employment," in *The New Economics*, pp. 558-571; Franco Modigliani, "Liquidity Preference and the Theory of Interest and Money," *Econometrica*, January, 1944; Mabel F. Timlin, *Keynesian Economics* (University of Toronto Press, 1942). Mention should be made of the earlier formulations of Lange, Meade, and Hicks.

[3] *The Keynesian Revolution* (Macmillan Company, 1947), pp. 199-206. Let S = money savings, I = money investment, M = stock of cash balances, r = the interest rate, Y = money income, y = real income, p = price level, N = employment, w = wage rate, η = the elasticity of demand. With the stock of M given by banking policy, the following system of equations describes the system:

$$\begin{aligned} S(r,Y) &= I(r,Y) \\ M &= L(r,Y) \\ Y &= py \\ y &= y(N) \\ w &= p(1 - 1/\eta)\, y'(N) \\ N &= F(w) \end{aligned}$$

[4] The discussion of empirical evidence on these equations was the subject of earlier papers at these meetings.

It would be meaningless to test whether in equilibrium the wage equaled the marginal revenue product or the wage equaled the marginal supply price for labor.[5] These are matters of definition and logic. Empirical evidence is relevant, however, to the question of the shapes and characteristics of the demand and supply functions for labor and their patterns of movement in the short run. The Keynesian system, just as the classical, involves assumptions as to the shapes of these relationships. These assumptions can be confronted with hard and stubborn facts.

I. *The Relation Between Changes in Output and the Real Wage Rate*

The demand equation for labor is essentially the same for Keynes as in the received tradition. The only change is the explicit introduction of the "degree of monopoly" in place of perfect competition or a constant degree of imperfection. The shape of the demand function for labor, the way in which employment varies with the money wage rate, is the same for Keynes and those he attacks. An expansion in output can only take place with a fall in the real wage rate.[6]

The shape of the demand curve for labor as a whole is not a truly fundamental postulate, subject directly to statistical investigation, since in both Keynesian and classical systems it is derived from the presumed shape of production functions. The logic of the Keynesian system provides that wage rates "largely govern" marginal prime costs and that with a given degree of monopoly, prices are determined by their marginal prime costs.[7] Moreover, money wage rates are an increasing function of output. An expansion in output in the system hence raises money wage rates, but prices must increase even further with movement along a given production function. The real rate of return to labor must fall. This result is thus derived from a submodel for the short period which presumes a fixed degree of competition, marginal prime costs are labor costs, the money wage is an increasing function of output, and technology is fixed with production functions of customary shape.

In a letter dated April 9, 1938, Mr. Keynes gave a "fuller" account of his position in these words:

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[5] Recent discussions have not always recognized this point. See, R. A. Lester, "Shortcomings of Marginal Analysis for Wage-Employment Problems," *American Economic Review,* March, 1946, pp. 63-82.

[6] The term "real wage rate" may mean the "product wage rate" which is the money wage rate corrected for the selling price of the industries paying the wage. In the more ordinary use of the term, the real wage rate is the money wage rate corrected by the cost-of-living index which includes important food and rent items not immediately the products of wage earners. In the formal models the two meanings are not distinguished, although the "product wage rate" is implied. See, William J. Fellner, *Monetary Policies and Full Employment* (University of California Press, 1946), p. 97.

[7] *The General Theory,* p. 12; A. P. Lerner, "Mr. Keynes' 'General Theory of Employment, Interest and Money,'" *International Labor Review,* XXXIV (1936). See, Arthur W. Marget, *The Theory of Prices,* II (Prentice-Hall, 1942), pp. 583-590.

> My first concern, of course, was to deny the theory that conclusions about real wages could be turned without material alterations into conclusions about money wages. I then proceeded to argue that money wages were as a rule a function of activity (though, of course, I did not mean this to cover the great inflation periods), tending to rise and fall with the level of employment. I argued further that the proportion of the product going to profits also tended in the short period to increase with activity, owing to the normal prevalence of increasing cost in short period conditions.[8]

The view that output and employment do expand in the short run, in the total system, only with a decline in the real (product) wage rate, which is at once classical and Keynesian, will be confronted with three sets of empirical data: profit margins, labor's share in income, and break-even studies.[9] While a decisive test may be impossible, this evidence tends to support the conclusion that the real wage and output expand together, save for conditions of hyperemployment. They suggest that for underemployment conditions the Keynesian and classical view of the shape of the demand curve for labor for the system must be abandoned and that the pattern of shift in the demand curve for labor in periods of expansion short of full employment do not require historically a reduction in the real wage.

A. There are a wide variety of statistical materials to support the generalization that the historical margin of profits per unit of output is positively associated with changes in output. Profits as a dollar-and-cents margin or as a per cent of sales expand and contract with output. Over-all indices of corporate profits and industrial production yield this result.[10] If the series of corporate profits and industrial production are analyzed by industrial groupings within manufacturing, for the period 1929-41, the same results stand out.[11]

Profit margin data have recently become generally available for the years 1936-45 in many industries from records filed with the OPA.[12] In some cases for small groups of firms producing standardized products, such as grades of paper, canned fish, etc., it is possible to follow the movements of output, profits, revenue, total costs and its components from year to year. These data constitute an invaluable source for the purposes of this paper, particularly for the years before the imposition of price controls. These profit margins per unit of output, before taxes, uniformly tend to conform to the pattern of increasing profit margins with increasing output.[13]

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[8] In the final paragraph Keynes wrote: "If you care to make use of some such fuller statement as I have given above of what I am trying to say, please feel free to do so; though I should like to see any use you make of the above before it is printed." Also see, J. M. Keynes, "Relative Movements of Real Wages and Output," *Economic Journal*, March, 1939, pp. 34-35, and J. T. Dunlop, "The Movement of Real and Money Wage Rates," *Economic Journal*, September, 1938.

[9] These data are in addition to the earlier direct testing of the movement of real and money wage rates, corrected to approximate as closely as possible the conditions presumed in the model.

[10] See, John T. Dunlop, "A Review of Wage-Price Policy," *Review of Economic Statistics*, August, 1947, pp. 158-159.

[11] For corporate profits data, see *Survey of Current Business*, Supplement, July, 1947, p. 30. For production series, see *Federal Reserve Board Bulletin*. The problem of matching industrial classifications is inherently difficult. For data on profits as a per cent of sales, see Office of Price Control, Division of Research, Financial Analysis Branch, *Corporate Profits 1936-1944*, and subsequent studies.

[12] Office of Temporary Controls, Office of Price Administration, Economic Data Analysis Branch, *OPA Economic Data Series*. See, in particular, No. 6 (Building Materials), No. 11 (Selected and Retail Shoe Distributors), No. 18 (Mechanical Rubber Goods), No. 21 (Tobacco Products), No. 23 (Fish Processors), No. 24 (Fruit and Vegetable Canners and Freezers), No. 25 (Paper and Paper Products).

These results are not surprising. Yet Keynes presumed just the opposite. In the reformulation of his views in March, 1939, Keynes presumed that "it is the avowed policy of industrialists to be content with a smaller gross profit per unit of output when output increases than when it declines. . . ."[14] He suggested that prices tended to be sticky with rising output, and the increase in costs arising directly from higher output and from higher factor prices tended to reduce profit margins. He goes on to urge a statistical study of the way "gross profit per unit of output changes in different industries with a changing ratio between actual and capacity output." The above summary of statistical evidence is fairly conclusive on the relation between gross margins and output, at least as output expands from low levels toward full employment. The question remains whether these changes in margin are to be attributed primarily to the direct effects of output or to the relative changes in factor and product prices, an issue Keynes also proposes for statistical testing.

B. Keynes believed the material on labor's share in income to be relevant to the problem of the relation between changes in output and real wage rates. The facts can be readily summarized if the appropriate definitions of labor income and national income have been chosen. Labor's share tends to fall with increases in output when income is defined as national income produced. Labor's share tends to be relatively constant in national income paid out or in personal income. The same results are obtained from a study of the rate of participation of wages and salaries in the income produced in separate sectors of the economy. These results are neither novel nor surprising. As output expands from low levels, aggregate profits rise as a percentage of income, wages, and salaries fall as a proportion of income. Since dividend and interest payments tend to be relatively stable, wages and salaries do not change much as a percentage of income payments. Falls in output are associated with rising shares of wages and salaries in income. In 1932 in manufacturing, for instance, wages and salaries were 106.9 per cent of income produced.[15]

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[13] For the period until the imposition of price controls. There is considerable evidence from these particular studies that margins were usually reduced under price controls. These results are in keeping with the evidence from over-all data. See footnote 10.

[14] "Relative Movements of Real Wages and Output," *Economic Journal*, March, 1939, p. 47.

[15] Wages and salaries constituted the following ratios of national income in the period

C. Break-even studies shed light on the range of problems here under review.[16] These investigations indicate that at least in heavy goods industries break-even points have remained fairly stable. In the steel industry, for example, break-even points have approximated 50 per cent of capacity. Moreover, the statistical relations established in these studies between output, costs, and profits, at unchanged factor and product prices, indicate that average profit margins expand with output. These break-even studies all yield good fits with the historical pattern of profits using the assumption that labor costs and output are directly proportional.

A change in the level of output may have impacts on the real wage rate through four channels which must be distinguished. (1) There are direct effects of output, arising solely from the movement along given production functions. (2) Changes in costs and revenue are associated with output changes even under conditions of fixed technology and fixed factor prices. Revenues are influenced by shifts to more profitable items and price lines; costs are similarly affected by methods of wage payment and the composition of product as output rises in the system.[17]

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since 1929. The calculations are based on *Survey of Current Business,* Supplement, July, 1947, pp. 26-27.

1929	57.4%	1938	63.5%
1930	61.2	1939	63.0
1931	66.0	1940	61.0
1932	72.7	1941	59.4
1933	72.7	1942	59.9
1934	68.9	1943	62.7
1935	64.3	1944	64.1
1936	62.5	1945	64.3
1937	62.4	1946	62.3

Incidentally, a study of the separate industrial components suggests that the rise in the share during the war years is associated largely with a rise in the relative importance of industries and sectors (such as government and some heavy goods industries) in which wages constitute a higher than average share in income. The results are to be attributed to weight shifts among industries. Some of the results, however, particularly in 1944 and 1945, are to be attributed to a narrowing of profit margins per unit.

[16] See an unpublished manuscript, "The Relation of Wages, Prices and Profits: Break-even Points," which surveys the results of studies in a number of heavy goods industries. The most careful and extensive studies have been made in the case of the United States Steel Corporation. See the following: United States Steel Corporation, *United States Steel Corporation, T.N.E.C. Papers* (1940), Vol. I, pp. 223-323; *Hearings before the Temporary National Economic Committee of the Congress of the United States,* Part 26, January 23, 24, and 25, 1940; Caleb A. Smith, "Cost-output Relation for the United States Steel Corporation," *Review of Economic Statistics,* November, 1942, pp. 166-176; Kathryn H. Wylie, and Mordecai Ezekiel, "The Cost Curve for Steel Production," *Journal of Political Economy,* December, 1940, pp. 777-821; Office of Price Administration, *Steel Industry: Prices, Profits, and Costs, August 1944* (Division of Research—"Confidential"); Harold Wein, "Wages and Prices—A Case Study," *Review of Economic Statistics,* May, 1947, pp. 108-123; Robert R. Nathan, Oscar Gass, and G. Griffith Johnson, *Economic Factors Relating to Wage Negotiations in the Steel Industry for 1947* (January, 1947) (not publicly released).

[17] See, John T. Dunlop, "Wage-Price Relations at High Level Employment," *American Economic Review,* May, 1947, pp. 247-250.

(3) Output changes induce factor and product price changes in the sense of changes in wage and price schedules. (4) Finally, output changes influence technology and production functions. There are some reasons to believe that these productivity changes are most important while output is expanding from low levels.[18] Ideally it would be desirable to measure these separate effects of changes in output levels. These factors would no doubt describe different patterns in each period of expansion.

The above statistical data suggest the following idealized pattern of the relation between output and the real wage rate in place of the relation used by Keynes and the classicals. As output expands from low levels, profit margins rise as overhead costs are spread. The real (product) wage does not fall since technical conditions of production permit expansion with falling or constant marginal costs.[19] Eventually, higher output induces wage rate and product price changes. Real wage rates still do not fall typically as money wage rates increase as fast as the average of prices. Real rates even rise as wage rates share in the higher level of profit derived from output effects and the impact of increasing productivity. Real wage rates rise even though the share of profits in income produced increases. In the last stage of the boom, as hyperemployment is approached, the rise in prices from income effects and

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[18] See, National Bureau of Economic Research, *loc. cit.*, pp. 165-168. The opposite view was taken by Marshall, *Official Papers by Alfred Marshall* (Macmillan and Co., 1926), pp. 91-92 and pp. 285-288. A reading of these pages from the *Official Papers* indicates the reasons given by Marshall for the change in position, after the first ten or fifteen years of his career, on the effects of falling prices on the well-being of wage earners. "I was very much struck by observing that in some of the evidence given to show that the fall of prices was doing great harm, it was argued that we were suffering from general overproduction, a malady which I contend we cannot suffer from, and that that was partly due to the fact that improvements were going on now much faster than at any other time; and the reason given for this was that when prices are falling, manufacturers are put on their mettle and exert themselves to the utmost to invent improved methods and to avail themselves of the improvements made by others, and I know, from my own observation, that this is true." *Loc. cit.*, pp. 92-93. Thus, at least a part of the "traditional" view that decreases in prices and output are associated with rising real wage rates was attributed to a presumed cyclical pattern of productivity.

[19] See the studies of Joel Dean. For a summary of the literature and problems, *Cost Behavior and Price Policy* (National Bureau of Economic Research, 1943), pp. 80-113. In addition to evidence on particular firms, a test may be made with data for the manufacturing sector of the economy. A series was computed for real income produced in manufacturing per hour of labor input. Income in manufacturing was translated in man-hours by the average hours worked. The series, on a 1935-39 base, shows that "real income" per hour of labor input follows the usual cyclical contours.

1929	86.8	1938	100.8
1930	86.9	1939	106.0
1931	79.0	1940	121.8
1932	63.5	1941	132.8
1933	66.2	1942	134.0
1934	88.9	1943	133.7
1935	93.4	1944	138.0
1936	96.3	1945	138.0
1937	102.9	1946	136.1

the increase in real costs at capacity may yield a reduction in real wage rates. As a historical judgment, the Keynesian and classical case, applicable only to hyperemployment, would appear to have been a rarity. If the pattern of interaction just sketched between output, profits, and the real wage rate be accepted, then typically the real wage and profits both increase with output, except at hyperemployment. The static demand function for labor and its pattern of shift with changes in the level of activity in the system, postulated by Keynes and the classicals, do not appear to be accurate or useful constants in the economic world. Policy recommendations based on those views are apt to be misleading save at hyperemployment. Let it be clear that short of full employment, an increment in output typically increases the wage and profit rates in real (product) terms.

II. *The Supply Function for Labor*

The supply of labor in the Keynesian system is some function of the money wage rate up to full employment, unlike the classical system in which the total labor supply is related to the real wage rate. The change is required for purposes of the internal logic of the Keynesian system. If the supply of labor were a function of the real wage, then, as in the classical framework, the volume of employment and the level of wage rates is determined uniquely by the demand and supply for labor. But the fundamental contribution of *The General Theory* requires that the level of employment (output and income) be determined by the equations relating to savings, investment, and consumption.[20] Having accepted the classical demand curve for labor, Keynes had to reject the supply function if he were to have a different theory of employment determination.

Keynes rejects the classical supply function on the stated grounds that common sense shows that wage earners do not reduce the amount of labor services offered every time the cost-of-living index rises.[21] The supply of labor for Keynes is perfectly elastic at the going money wage rate, up to full employment. Leontief has called this judgment a fundamental postulate since it cannot be derived by deductive reasoning.[22] It constitutes a proposition about the working of actual labor markets which should be subject to empirical evidence.

There are fundamental difficulties with the classical supply curve of labor, the most cogent being that the organization of the labor market by labor unions means that individual choices between income and leisure are not decisive in wage setting.[23] But the objection cited by Keynes must certainly be treated as trivial. It is no doubt true that within some limits a rise in living costs will not affect the amount of labor supplied. But any survey of wage negotiations will reveal that these limits are surprisingly narrow. The normal custom of annual money wage contracts necessarily envisages some variation in real wage rates. The widespread introduction of sliding scales or wage reopening clauses in periods of great uncertainty over living costs is a measure of the narrowness of these limits. The money illusion is no more than an ordinary discontinuity.

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[20] See equations (1) and (2), footnote 3 above.

[21] *The General Theory*, pp. 12-13, 277.

[22] Wassily Leontief, "Postulates: Keynes' General Theory and the Classicists," in *The New Economics, loc. cit.*, pp. 233-234. On the supply function in Keynes, see Franco Modigliani, *loc. cit.*, pp. 47-48.

Attempts to measure the shape of the short-run supply function for labor as a whole have not been notably successful. There are, however, cogent reasons for the judgment that even in the absence of labor organizations the conventional shapes are misleading and that for practicable changes in wage rates above the established real or money wage, supply is invariant to wage changes. A more careful formulation would regard the supply of labor as a step function. Small increases in the wage, either money or real, do not increase supply. A large wage increase, particularly in the form of time-and-a-half rates for overtime, will yield a step increase in supply. Some relatively small wage rate reduction, real or money, will induce a withdrawal of all the supply, at least temporarily, through a work stoppage.

A. For large groups in the population, convention dictates that the person be in the labor force. Custom also specifies the amount of labor supplied at the standard work week. Thus for men between twenty and sixty-five years of age it is usual to expect that they are in the labor force for full-time employment. Even substantial changes in wage rates would make little difference. This age and sex group constituted 63.2 per cent of the work force in nonagricultural employment in September, 1947.[24] Changing patterns of social and family life have been tending to yield similar results for large groups of women, particularly for those in the age groups twenty to thirty-five.[25] Consequently, a very high proportion of the work force would be employed or would be seeking employment, and in the same amounts, even if the wage rate (real or money) was considerably higher.

It cannot be denied that certain minor groups within the labor force, for example, the old, the very young, some housewives and workers with two jobs, may be more sensitive to changes in wage rates.[26]

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[23] Ragnar Frisch, *New Methods of Measuring Marginal Utility* (Bertrage zur Ökonomischen Theorie), 1932, pp. 83-113.

[24] *Monthly Labor Force Bulletin* (U. S. Department of Commerce).

[25] See, John D. Durand, "Growth of the Labor Force in the United States" (unpublished manuscript).

[26] See, Paul H. Douglas, *The Theory of Wages* (Macmillan Company, 1934), pp. 269-294. See an unpublished study by Jack Hirshleifer indicating that even for women workers during the war period the supply was highly inelastic with respect to wage rate changes.

Even among these groups wage rate changes may have opposing effects.

B. There is considerable evidence that the size of the labor force, in peacetime, is stable as a proportion of the population standardized for age and sex.[27] This stability seems to hold in the face of wide fluctuations in employment and wage rates. Long has concluded that "the aggregate labor supply curve is not only inelastic (indeed almost completely so) with respect to income change, but is independent also of great fluctuations in the labor demand."

When labor organizations are introduced widely into the labor market, the choice between income and leisure made by individuals becomes less relevant to wage determination. The supply function in the minds of union leaders is probably not related narrowly or uniquely to the real or money wage rate. The judgment may be made that the amount of labor supplied for the economy as a whole is not significantly related to narrow changes in the wage rate. The relationship does not matter. For theoretical purposes it would be best to assume the quantity of labor as invariant to modest increases in the real or money wage rate in the short run.

III. *Employment and Wage-Rate Determination*

In the classical framework supply and demand schedules for labor determine both the wage rate and the level of employment. The theory of wage-rate determination is one with the theory of employment. The Keynesian logic separates the two.[28] The volume of employment (output and income) is determined by the savings-investment and liquidity equations in which wage changes play only an indirect and roundabout role. The theory of employment (output and income) constitutes the fundamental orientation of *The General Theory*. There is really no theory of wage level determination in Keynes. The volume of employment is determined, and the real wage rate is that appropriate to the volume of employment as indicated on the demand function for labor.[29]

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[27] Clarence D. Long, "The Labor Force and the Supply Curve of Labor" (unpublished manuscript); "The Labor Force and Economic Change," in *Insights into Labor Issues*, edited by Richard A. Lester and Joseph Shister (Macmillan Company, 1948), pp. 329-356; and *The Labor Force in Wartime America* (National Bureau of Economic Research, Occasional Paper 14, 1944).

[28] The classical wage and employment determination can be summarized in the demand and supply function, using symbols explained in note 3 above.

$$w = p\,(1 - 1/\eta)\,y'(N)$$
$$N = F\,(w/p)$$

These equations yield a unique money wage and volume of employment with a specified production function, $y = y\,(N)$. Thus divide the first equation by p and there are two equations and two unknowns, the real wage rate and employment with a given $y = y\,(N)$. By removing p from the supply schedule Keynes made it impossible to determine employment in these two equations except at a given or specified level of prices.

[29] Given the Keynesian and classical shape of the demand function for labor the smaller the volume of employment determined in the system the higher the real wage rate.

The level of money wage rates is really given from outside the system.

It has been suggested that "the test of a new idea is . . . not only its success in correlating the then-known facts, but much more its success or failure in stimulating further experimentation or observation which in turn is fruitful. This dynamic quality of science viewed not as a practical undertaking but as development of conceptual schemes seems to me to be close to the heart of the best definitions."[30] By this test the Keynesian theory of employment has been a great success, but the Keynesian comments on wage rates cannot be judged fruitful.

Keynes cut the knot which tied wage and employment theory together in a simple relationship. The theory of employment has been rapidly developed as a part of the theory of income determination. The theory of wage determination, however, has been lost in the shuffle. The difficulties indicated above with the shape of the relation between real output and the wage rate, combined with the more serious limitations to the supply schedule leave the theory of wage-level determination today in a precarious state.

Perhaps wage determination is so much a matter of nonmarket forces in a world of collective bargaining that economists in their formal logic should assume the money wage-rate level as given. But a theory of wage rates has always been an integral part of economics, and economists today do construct models involving simplified versions of wage fixing. Thus, a dichotomy has recently been drawn between rigid and flexible wage rates.[31] Rigid wages have been associated with the advent of collective bargaining. The distinction I believe has no basis in fact. There never was a flexible-wage labor market. The evidence we have indicates that wage rates have not become more rigid, by any test.[32] The distinction involves a misunderstanding of the operation of the labor market.

Before wage-level determination is relegated completely to students of industrial relations, a more serious attempt should be made to integrate wage fixing into models of the total system. Only a few preliminary suggestions can be made here. They proceed from the conviction that "a theory is only overthrown by a better theory, never merely by contradictory facts."[33]

There are a limited number of key bargains in the system which act as wage leaders. The fixing of these rates will lead to the adjustment of the rest of the wage structure to these growth points. These wage leaders are centers in the economy where all the factors customarily regarded as relevant to wage setting get focused—anticipations regarding the business outlook, past increases in living costs, and levels of profits. These factors are operative in an industrial relations context where willingness to fight or settle—aside from money calculations—may also be important.

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[30] James B. Conant, *On Understanding Science* (Yale University Press, 1947), p. 24.

[31] Franco Modigliani, *loc. cit.*, pp. 70-78.

[32] John T. Dunlop, "Trends in the 'Rigidity' of English Wage Rates," *Review of Economic Studies*, June, 1939, pp. 189-199.

[33] James B. Conant, *loc. cit.*, p. 36. Also see, Victor F. Lenzen, "Procedures of Empirical Science," in *International Encyclopedia of Unified Science*, I, 5, p. 45; "generalizations from experience become definitions of new concepts."

Money wage rates are raised at these key bargains either when the cost of living has risen significantly over the past period (with the expectation of no sharp decline) or when the expectation is widely held of profit levels higher than normal for an indefinite period ahead. The cost of living may be viewed as a push and the profits influence a pull on wage rates. Money wage rates are reduced via the following mechanism: decreases in income lead to falls in prices at certain points in the economy; the reduced profit margins force wage reductions which may then spread to the nearest key bargains; as these bargains are reduced, the general wage level declines. It is the decline in product price rather than unemployment which brings about the reduction. Wage cuts do not appear typically where prices are held rigid. These suggestions on the process of change in money wage-rate levels require further abstraction to yield a few tractable relationships for a model of the total system.

DISCUSSION

MORRIS A. COPELAND: Dr. Jones has given us an extremely stimulating analysis of the role of four types of savings institutions in what may be called the national savings and investment account and of their role in the problem of full and stable employment. And incidentally he has given us a wholesome combination of economic theory and statistical fact.

With Jones's criticism that savings institutions exhibited too much liquidity preference in the 1929-33 business recession and so contributed to the volume of unemployment it is difficult to quarrel. Nor can one well question his implication that such institutions are a significant factor in encouraging savings to take the form of loans rather than of equity capital, and that they are therefore currently aggravating the tendency of American business to develop a top-heavy financial structure. To remedy this situation Jones proposes to permit savings institutions to invest more extensively in equities. This seems an eminently reasonable proposal, although it is difficult to judge it properly until it is spelled out in something closer to a statutory form.

Nonetheless I have a number of doubts both with regard to Jones's theoretical formulation and with regard to his selection of remedies. Let me indicate some of them.

First, as to his theoretical formulation. He tells us that the financial institutions he has under consideration "are operating consistently with high employment when they make investments equal to the amount of funds which the public wishes to put into them at high employment or which the public wishes to put into them at the particular time concerned, whichever is greater." This implies two corollaries: that these institutions can "in a significant sense impound savings and prevent them from flowing into investment"; and that these institutions can make a significant "positive contribution" toward "achieving . . . the optimum rate of total investment." Although in the first of these three propositions Jones uses the word "investment" to mean an increment in holdings of loans and securities, I assume that in the second and third he means by "investment" what Keynes meant; viz., "capital formation." The three propositions suggest the question: what is the connection between decisions by savings institutions on the one hand and the national rate of capital formation on the other?

Presumably Jones accepts both the Keynesian proposition that *ex post* the national savings and investment account is a balancing account and also the proposition with respect to savings institutions that their sources of funds—these sources are chiefly increments in their savings account liabilities—are equal to their uses of funds—uses which are chiefly increments in holdings of loans, securities, and cash.

Dr. Jones pictures savings institutions as largely passive with respect to "the rate at which the public wishes to put funds into them." He rightly insists that this rate reflects what the public "do with their total assets rather than what they wish to do or do with their total current savings." Accordingly, what savings institutions can do to the national rate of capital formation is done primarily by changing the composition of their assets and not in any important sense by decisions on their part to increase or decrease their asset total.

With this much of Jones's view of the connection between decisions by savings institutions and the national rate of capital formation I am in full agreement. It is with the next step in his analysis that I take issue.

Dr. Jones speaks of savings institutions as "investing funds" at a "lower rate" or at a "higher rate" than they receive them. When savings institutions are "investing funds" at a "higher rate" than they receive them, he tells us, they exert an expansive or "inflationary" influence; when at a "lower rate" they exert a contractive or "deflationary" influence. Some uses of funds by savings institutions are evidently not regarded as "investment" uses, e.g., increases in their cash balances, and apparently also increased holdings of government bonds. The changes in cash holdings by life insurance companies, savings banks, and savings and loan associations are minute in relation to changes in the aggregate demand for gross national product. But Jones attaches considerable significance to these changes.

Commercial banks are put in a special category. The funds received by the other three types of financial institutions considered, he tells us, "limit investments whereas with commercial banks investments precede deposits." Thus he holds that while the other three types of institutions can "make some positive contribution to optimum investment" when the rate is deficient, commercial banks "technically have the capacity to achieve the optimum rate of total investment." This statement about commercial banks is in the nature of an obiter dictum, so far as the paper before us is concerned. I disagree with it, but I shall not stop to indicate why, except to say that my reasons for disagreeing may perhaps be inferred from what follows.

To say that funds have at various times been invested at a different rate from that at which they were received suggests that the national savings and investment account is out of balance *ex post*. I assume Jones does not mean such an inference but this language is not conducive to clear understanding. Nor is his use of the word "investment" in two senses. The double meaning of "investment" is particularly unfortunate because he does not explain the connection between the two senses in which he uses it; i.e., the connection between an extraordinary increment in the holdings of loans and private securities by savings institutions on the one hand and an increment in the national rate of capital formation on the other.

Let me state the connection as I see it. When savings institutions markedly change the composition of their asset holdings, increasing their holdings of cash and U. S. securities and liquidating their holdings of private loans and securities, they cut private borrowers off from sources of funds on which they have come to depend. This cutoff is likely to cause financial distress, and so to cause a decreased rate of capital formation. Such a shift in the assets holdings of savings institutions may also contribute to increasing the interest costs involved in private capital formation. The influence which savings institutions thus exert is indirect in the sense that a decrease in their investments in private loans and securities is not in itself a decrease in demand for new capital goods. Nonetheless the influence exerted may be a substantial one toward contracting aggregate demand for gross national product.

Again, when savings institutions change the composition of their asset holdings by markedly increasing their holdings of loans and private securities, the chief effect is on the structure and level of interest rates. It is confusing to call such a change in asset composition "an increase in investment." It is certainly not a direct addition to the aggregate demand for national product. It may, however, remove restraints on capital formation to the extent that interest rates become easier and to the extent that credit analysis becomes less severe.

If this statement of the connection between the two senses of "investment" is correct, Jones has greatly overestimated the "positive contribution" which savings institutions can make to achieving the optimum national rate of capital formation when aggregate demand is deficient.

In regard to this statement of the case, however, we must note one possible qualification. Jones has proposed increasing the powers of savings institutions to invest in equities and he interprets the words "invest in equities" to include direct investments in tangible capital goods; e.g., investments by life insurance companies in apartment houses. To the extent that savings institutions are—or may in future be—in a position to engage directly in capital formation, they are in a position directly to influence aggregate demand.

I have called this a possible qualification. Is there reason to suppose that savings institutions, if they had the power, would have a financial incentive to engage largely in capital formation when aggregate demand is insufficient? If, with the power to help, they would lack the incentive to use that power helpfully, Jones has still overestimated their contribution to full employment. I doubt that savings institutions have or that Jones's proposals would give them such an incentive.

One final comment on his proposal to increase the powers of savings institutions to invest in equities. A major reason for this proposal is that so large a part of the asset holdings of individuals has come to take the form of claims on savings institutions, and that this part promises to get larger still.

The method of attacking this problem proposed by Jones is, I think, a promising one, and one that should be further explored. But there is, I suggest, another possible line of attack on the problem. When the idea of requiring actuarial reserves against life insurance policies was developed, it was undoubtedly an important step forward. And when we adopted a national program of old age and survivors insurance in the thirties it was natural to think that actuarial reserves should be set up against these social insurance policies. But it is by no means clear today that actuarial reserves against these social insurance policies are either necessary or advisable. The larger the reserves we find it advisable to accumulate, the higher the national rate of saving. Something very like this appears to be true also with regard to accumulations in private savings institutions. Is it not time to investigate the question as to whether there is not some feasible and safe alternative to the policy to which we are now committed—the policy of larger and larger portfolios for private savings institutions?

ROBERT A. GORDON: Two major weaknesses characterize the attempts that have been made during the past decade to use the Keynesian tools in explaining short-period fluctuations in total income, employment, and other aggregative variables, including the general levels of prices, interest rates, and wages. These weaknesses are: the use of static tools to explain dynamic phenomena and the concentration of attention upon aggregates and upon distressingly broad and vaguely defined index-number concepts—with insufficient attention being paid to those interrelationships among components which may throw light on the behavior of these aggregates.

Keynes suffered from both of these defects. His theoretical system was static, but this did not keep him from attempting to use it to explain some types of short-period fluctuations. And his reliance upon the most simplified type of macro-economic model is too familiar to require any elaboration here.

Professor Dunlop's paper is not free from these weaknesses, although he does see that they exist. He indicates that he is aware of the difference between movements along a given demand schedule for labor and shifts in that schedule; but, unfortunately, his conclusions regarding the demand function for labor lose sight of this elementary distinction. As for his use of aggregates, the entire paper is concerned with the demand for and supply of labor as a whole and with the determination of the wage *level,* which is an index-number concept. Obviously, there is no single wage rate, and there is no single national labor market in which the total demand and supply of labor meet to determine such a rate. I have strong reservations as to the usefulness of the concept of "the general level of wages"; and I doubt whether we are likely to secure a useful theory of the level of wages, derived from aggregate demand and supply schedules for labor, which can then be inserted into the sort of macro-economic model which Professor Dunlop takes as his point of departure.

Professor Dunlop begins with one of the models which Lawrence Klein has developed to describe the Keynesian system. The last two equations give expressions for the aggregate demand and supply of labor. These equations are static. The demand equation relates the real wage rate to the increment of total output attributable to a small increase in employment. (I disregard the expression which brings in the troublesome concept of elasticity of demand for total output.) The parameters of this equation are taken as given, and Keynes and most other economists have assumed that these parameters were such as to yield a diminishing marginal product as employment and income increased. This requires that real wages decline as employment increases, but this relationship is defined *only in the static schedule sense.*

Building on his work of nearly a decade ago, which converted Keynes, Professor Dunlop cites some of the evidence bearing on profit margins, labor's share of total income, and break-even points to show that "the real wage and output expand together save for conditions of hyperemployment." Considerable emphasis is placed on the rise of profit margins during the upswing, but this would also be consistent with a fall in real wages as output expands. In interpreting his findings, Professor Dunlop offers the following reasons for the greater rise in money wage rates than in selling prices: constant or falling marginal costs during at least part of the upswing, "the higher level of profit derived from output effects" (I am not sure what this means other than falling average fixed costs, which in theory do not affect short-period pricing), and changing productivity. The first of these factors refers to a movement along a given demand schedule for labor; the third refers to a shift in the schedule.

Professor Dunlop concludes that "the demand function for labor postulated by Keynes and the classicals does not prove an accurate or useful constant in the real world." He may be right, but he has not supplied the evidence. He has been talking about the historical behavior of wages and prices, and he has not separated movements along a given schedule from shifts in that schedule. Ordinary time series data do not reveal static schedules. It is the shifts which are of primary importance in studying wage movements.

I should like now to raise an important matter of definition. What do we mean by real wages, and to what concept of real wages should we relate the demand for labor? In his article replying to Professor Dunlop's first paper on this subject, Keynes said: "It is important, therefore, if we are to understand the situation, that the statisticians should endeavour to calculate wages in terms of the actual product of the labour in question."[1] Keynes had in mind the need to exclude from the cost-of-living deflating index changes in the terms of trade and in the prices of utilities, rent, etc.—which are not affected by the relation between output and employment in manufacturing and such other industries as are usually covered in wage studies.[2] This point has led Professor Dunlop to distinguish between the "product wage rate," which is the money wage rate deflated by the selling price of the industry using the labor, and the real wage rate in the sense of the money wage rate corrected by the cost-of-living index, "which includes important food and rent items not immediately the products of wage earners."

This distinction is in the right direction, but we must be careful in our definition of "selling price." The "product wage rate" for any industry should mean average hourly earnings divided by an index of the prices received by the firms in that industry. For manufacturing and mining, this means using *wholesale* prices as the deflator;[3] for the public utility and service industries, a weighted index of the relevant wholesale and retail prices would be required. In the case of retail trade, wages should be deflated by an index of the difference between retail and wholesale prices; i.e., the gross margin. It would be useful to have direct comparisons of money wage changes in particular sectors of the economy and of selling prices in these same areas. We need these detailed comparisons before we begin generalizing about the behavior of "real" wages in the economy as a whole. These detailed studies are all the more necessary if, as Professor Dunlop suggests, particular labor markets or industries play a key role in generating wage increases which then spread through the economy.

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[1] "Relative Movements of Real Wages and Output," *Economic Journal*, March, 1939, p. 44.

[2] However, Lorie Tarshis, in his study of the movement of real wages, used a broad index of wages which covered utilities, wholesale and retail trade, railroads, construction, and a number of service industries, as well as manufacturing and mining. Cf. "Changes in Real and Money Wages," *Economic Journal*, March, 1939, p. 150.

[3] Cf. Richard Ruggles, "The Relative Movements of Real and Money Wage Rates," *Quarterly Journal of Economics*, November, 1940, pp. 147-148.

In this connection, it is worth remarking that economists frequently are distressingly vague in their implied descriptions of how the economy operates. Too much of economic theory, particularly price and wage theory, is based on the assumption that the economy is composed entirely of manufacturing firms selling directly to consumers. Manufacturers sell at wholesale, either to other manufacturers or to wholesalers and retailers. Trade and transportation add nearly as much to the value of the national product as does manufacturing. Yet the relation between output and employment, in either the schedule or historical sense, may differ significantly in these different sectors. I hope that Professor Dunlop or other students in the field will eventually give us some of this missing information regarding the relation between wages and the appropriate type of selling price in different branches of industry.

There is another aspect of the theoretical relation between wages and prices on which I should like to comment briefly. Most writers assume that short-period price changes accurately reflect changes in marginal cost, subject to changes in an index of the "average degree of monopoly" or in the "elasticity of demand" for total output. If marginal cost is defined objectively, as it usually is by implication in aggregative analysis, this implies that the principle of profits maximization is taken to mean maximum profits over some short period. This is a poor assumption to make, and it does not correspond to the assumptions underlying the more sophisticated literature on the theory of the firm—which takes account of anticipations. *Long*-period profits maximization determines *short*-period price behavior, and it is not very helpful to lump the complex factors at work here under the heading of changes in the degree of monopoly. Such long-period considerations, including businessmen's emphasis on total unit cost, may help to explain why money wage rates in manufacturing apparently tend to keep up with wholesale prices, which means rising real wages in the conventional cost-of-living sense. So far as these considerations bear on the demand for labor, what we have here is a series of shifts in the demand schedule for labor—and not a movement along a given schedule.

To conclude. I agree with Professor Dunlop that we do not have a "theory of wage-rate level determination." We lack even more than this implies. We do not have a useful theory of differential wage rates that will explain the occupational and geographical wage structure at any given time. And we do not have an adequate theory relating movements in wages to movements in prices. We need a static theory (with dynamic overtones) of wages which will explain simultaneously differences in money wages and in real product wages, and we need a dynamic theory which will relate group money wage levels to changes in group product prices and in the cost of living.

ECONOMICS COLLIDES WITH ETHICS[1]

By RALPH E. FLANDERS
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The title chosen for this talk is not perhaps in complete accord with the dissertation which follows. A fondness for alliteration influenced in some degree the choice of words. Yet the subject will be near enough to the title so that the latter will not be completely inappropriate.

A broader subject would be to explore the relationships between science and ethics. This is indeed a fruitful field for exploration and leads one to fundamental considerations of religious doctrine as well as of science. Much thinking needs to be done in this field, but we are not going to dig so deeply into fundamentals tonight.

Let us begin by asking whether economics is a science. I suspect that to be an old question and that my thoughts on that will be somewhat amateurish, but since they are pertinent to my subject a little time must be given to this matter.

Science is based on a broad observation of happenings in a given field. Then underlying principles are inductively derived from these observations or previously suggested principles are compared with the reality of the observations. Instructive hypotheses thus derived are tested in practice both on a laboratory scale and in operations of greater magnitude.

An essential part of rigidly scientific investigation is, of course, carefully planned experiment in which the variables affecting the phenomenon under discussion are altered one by one, keeping the remainder constant. The effect of the controlling variables thus isolated can be put into a formula, or stated in some other practical form for practical use.

Does this procedure apply to economics, which concerns itself with the production and distribution of goods and services in human society? We can observe instances and form theories from our observations as to how the members of society as a whole act and react in this process of producing and distributing goods and services. How sure and definite are our results? How accurately can they be applied to the controlling of a given situation in which there seem to be arising dislocations and obstructions to the free flow of production and distribution of wealth? In this one of the social sciences as applied to the practical management of our affairs do we have anything like the surety that we do in the field of physical sciences?

Evidently we do not. We have no research laboratory. It is impossible to group a few persons within a closed wall and experiment on them as we can with physical materials and forces. Our laboratory is society as a whole and that means, in its furthermost reaches, the whole population of the earth itself, of which we may now say that scarcely any part of its does not affect the rest of it or is unaffected by it. It is, of course, true that within a given nation a certain small degree of isolation may be reached. There are barriers of language, of law, of transportation, of customs duties, and the like which permit the inhabitants of a nation to be experimented with to some degree as a unit, but still not in strict isolation. The social sciences have in fact been enriched by the experimentation on the people in the United States undertaken by the New Deal in the period from 1933 until the second World War. The main objective was to find means for reducing mass unemployment. The results of those experiments were largely negative, yet negative results are extremely important.

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[1] This address was presented at a dinner meeting of the American Economic Association on December 28, 1947.

Other things were learned as a result of our economic controls during the world war itself, but they are of limited application to peacetime living.

So far, then, as concerns any endeavor to construct economics as a pure science we must resign ourselves to the facts that our laboratory is unmanageably large, the variable factors of any given problem cannot be isolated, and we must content ourselves with less scientific and more judgmatical deductions as to the causes of change, most of which are beyond our control.

We have the final difficulty that this social science is primarily a study of human behavior. It is true that it is assisted by statistical information whose gathering and interpretation may be rigidly scientific. Yet the final subject matter is human behavior, and until the springs of human action become subject to detailed and rigorous analysis, we cannot expect economics to provide affective scientific controls.

Throughout its history this social science has shown itself responsive to social conditions of which it is itself a part. The mainly agricultural economy of the eighteenth and preceding centuries resulted in one group of theories and practices. With the Industrial Revolution and England as the world's workshop, there resulted another set of principles and practices. Furthermore, these preceding bodies of economic theory supposed a peaceful world. For a time at least that condition has passed, and we must expect to proceed on modified lines if we are to gain any useful control of the world in which we live. Ours is not a peaceful world and the difficulties of organizing it on a peaceful basis seem to increase rather than diminish.

It may well be that there is a hard residual deposit of enduring science which remains throughout the flux of changing circumstance.

May it not also be that this eroded core may be of less practical importance than is the current experience and the immediate wisdom we draw from it so painfully?

Economics thus has difficulty in preserving its scientific status. Some practitioners of this quasi-science have apparently given up all hope of its being a science and have related it closely to ethics. Particularly in the period of the New Deal, the assumption appears to have been made by the practitioners who were most listened to at the time, that society had the ability to control the great mass of individual behavior and direct it toward ethical ends, leaving only a remnant of scientific theory to pick up the loose ends of the situation which was being considered.

Examples of this were to be found in the extremes of the purchasing power theory which involved the raising of wages beyond previous experience and the redistribution of wealth by taxation. It was expected that the resulting low profits would lead to a strong endeavor to increase them by high volume production based on the high purchasing power. This did not work. It discouraged much marginal production whose contribution was needed for the total volume. It provided no inducement for capital to increase and improve facilities, as was needed for expanding output, and in general it discouraged enterprise rather than encouraged it.

High ethical motives guided the prevailing economists of this period. But economic rather than ethical influences prevailed and this incursion of ethics into economics did not turn out too well.

On the other hand, as I propose to explain, it seems to me that pure economics of the laissez faire type, devoid of ethical considerations, is not getting on too well at the present time nor does it show any signs of getting any better in the near or distant future. Ethics and economics are in the position of shouting and throwing stones at each other. It looks as though something needs to be done to get them to work together instead of contending one with the other. We have, in fact, entered a period in which laissez faire is obviously breaking down for reasons which are new, and which demand our serious attention. To bring your consideration to these matters is the purpose of this talk.

As we face the problems in view for the present and coming months, it is possible to make a statement of our present social objectives. These objectives may be conceived of as being ethical in their nature. We are most concerned with two of these objectives. The first is the avoidance of inflation. The second is the maintenance and improvement of the general standard of living in this country, which includes the purposes of continuing high employment, increasing production, and providing a fair and reasonable distribution of the products of production.

It is our purpose to avoid inflation because it results in serious injustices. Those who are living on their savings in whole or in part are particularly affected. Those savings have less and less value as inflation proceeds. Likewise handicapped are those who are dependent on pensions or other forms of retirement funds or payments.

It is becoming apparent that a considerable group of those living on current wages are likewise being left behind as the wages of others in the working group rise higher and higher as the average of wages increases. While the wage adjustments made previous to V-J Day tended to raise the level of the lower earning group with reference to the whole, there seems reason to believe that no longer to be the case. The successful demands for higher wages are more generally pressed and gained by those already in the group of the better paid.

The structure of inflation is simple. Our enormous store of money and bank credit available for purchases, applied against a nearly stationary rate of production and distribution, offers opportunity and pressure for prices mounting up proportionately to the limit of the division of that production into the available purchasing power. This sets the ceiling on inflation.

That ceiling can be lowered by reducing purchasing power or by increasing production. I share with businessmen and bankers generally the doubts as to whether the use of monetary means for reducing purchasing power can safely be applied. Have we any experience to indicate that it has been applied historically without resulting in a rather severe reduction in employment and production? This interferes with our second objective which is the maintenance of employment, the expansion of production, and the increase of purchasing power.

It seems probable that reduction of our money supply by fiscal means is safer than by monetary remedies. The maintenance for a considerable period of high receipts from federal taxation and the careful and resolute trimming of governmental expenditure will result in continuing high budget surpluses. To the extent that these can be applied to the reduction of the bank-held government securities, to that extent can our swollen money supply be most safely reduced.

Some tax reduction is indicated. It should take forms which give relief to the classes most seriously handicapped by inflation. There must likewise be carefully worked out plans for such tax reduction as will specifically rather than loosely apply to funds which go into capital expenditures and thus increase production. These seem to be the safe ways to lower the ceiling.

It is doubtful, however, whether inflation has actually hit that ceiling. Is there not a mechanism of inflation working under that ceiling and tending to push prices up to it? That mechanism would be the wage-cost-price spiral now at work, and with another revolution of its machinery already being arranged for. We have to consider both parts of the problem; that is, lowering the ceiling and arresting or slowing up the mechanism. Since the mechanism makes its own contribution to the money supply by expanding credit, we have a double interest in putting brakes on the soaring spiral.

What can be shown, I believe, is that the slowing up of this spiral under conditions of high employment necessitates what we have been accustomed to think of as ethical considerations, besides those which we are accustomed to think of as purely economic. Where do the ethical considerations come into the wage earners' area of action?

There is a quite evident relationship between full employment and inflation. Without discussing at this time the question as to which comes first—wage advances or price advances—it is quite clear that with full employment and heavy purchasing power the ordinary limits on both wage advances and price advances disappear. If the worker can leave one job without doubt in his mind as to whether he can get another, he will be much more confident and persistent in making wage demands than he will be otherwise. If the manufacturer finds himself in a seller's market, the ordinary restraints on raising the price of his product disappear. This describes in simple terms the malady we are suffering from today.

Whether the initial impetus comes from high wages or high prices, they react on each other with deadly precision. High wages increase costs and purchasing power. The increased costs are reflected in increased prices, which find the high purchasing power available to move into consumption and enjoyment the goods and services produced. Finding that this results in no net increase in consumption, the desire for high wages again expresses itself through another profitless revolution of the machinery of inflation.

It should be sufficiently clear that no actual improvement in consumption is possible without an increase in production. Without that increase, a rise in wages or profits simply makes the goods produced cost more. There is, of course, on the part of organized labor a feeling that profits can be dipped into and thus shared in equitably, but there are limits to this process. It is generally considered that a net profit of around 17.5 billion dollars resulted from our present annual production rate of 200 billions. This means less than 9 per cent of the total. The wage increases being asked, if obtained by all those engaged in productive work, would go far beyond this maximum of 9 per cent available for distribution.

What is happening, of course, is that a temporary advantage at the expense of the rest of the workers goes to those organized groups which got the first advances in a new round of increases. This they gain at the expense of other groups who are slower in making and gaining their demands. They have to hurry to catch up. Some groups never catch up. This considerable body of those left behind is growing and constitutes our most serious internal social problem at the present time.

It is clear that the existence of a body of unemployed would slow up this inflationary process. We are not satisfied to have that body of unemployed. We must find some other way to avoid inflation. How can we do it?

I regret that I can see no simple or easy way. In fact, the only way is a hard way. That hard way is a matter of self-discipline for organized labor and for business management. It involves first the understanding of the simple truth that we consume and enjoy only what we produce, and that there is no use trying to raise the standard of living by raising wages and profits if, in the process, we do not produce more. Yet it remains true that powerful and enterprising unions can temporarily at least gain an advantage over their fellows who are unorganized or are members of weaker organizations. The high wage group can demand and get still higher wages. This is good laissez faire doctrine. They can only do so in most cases by raising the cost of their product to their fellows who are left behind and get no corresponding increase in purchasing power. The successful group has climbed up on the bare backs of the submerged group. This is good laissez faire, but it is bad ethics.

Now, what about business? This group has also to weigh ethical considerations against the "strictly business" point of view in which the businessman has been educated to believe as the social law and gospel. He must resist the easy balloon-like float into the upper reaches of inflation by proper action as to wages and profits.

We were enjoying a respite from the advancing spiral during the last winter and spring. Wages and prices were in an uneasy balance. The cost-of-living curve had flattened out and there was expectation of a decline. It was true that prices were not in line with each other and needed readjustment. Likewise wages in different occupations were out of line with each other and needed readjustment. As experience shows, only in real depressions can that be done by any other means than by leveling upward. Profits of the great majority of the business firms who publish their reports were unusually large for peacetime. This gave promise of making an easy undertaking of the needed price and wage adjustments. The only intractable factor in sight was the cost of food, and with good harvests this was expected to level off, if not decrease. The whole outlook was hopeful.

In the early summer two disasters changed this hopeful picture. The first was the heavy rains and resulting floods which prevented planting corn and other grain crops at the proper season. This was particularly unfortunate so far as the feed grains were concerned. They enter into the production of almost every food except fish, fruit, and vegetables. Their abundance or scarcity is a determining factor in the supply and price of meat, milk, butter, cheese, poultry, and eggs. There might still be sufficient supply at moderate cost were it not for our large foreign commitments for feeding Europe—commitments dictated by both political and humanitarian considerations. As it is, the near prospect for any decrease in the food element of living costs is something less than dubious. It is disheartening.

The second calamity was the history of John Lewis in his negotiations with the United States Steel Corporation and the Northern mine operators, and the price increases in steel which followed. I call this a calamity because it will surely prove to be one unless the lessons it teaches are quickly learned and acted upon.

The incident presents the type situation, in an exaggerated form, of the difficulty of avoiding inflation under conditions of full employment. In a key industry on which the whole industrial economy of the country is dependent, record breaking demands as to wage and benefit payments were made. With little public appearance of resistance, terms were accepted which amount to an increased cost in wages and benefits of forty-four cents per portal-to-portal hour. For each hour spent at the working face the increased cost is still greater by an indeterminate amount, depending on local conditions.

In late July, shortly after the coal settlement, the United States Steel Corporation announced substantial increases in the price of steel. These were followed in due course by increases in automobile prices and electrical appliances. Industry officials made clear in announcing the advances in prices that they were due to increased costs during the first six months of the year and did not reflect the boost in the miners' pay. Therefore, are we to expect a further round of price increases as a result of the wage cycle that the coal settlement precipitated?

If we are right in our conviction that full employment tends to end in inflation, and if the successful Lewis campaign is a large-scale example of the working of this fateful economic tendency, then the parties to the negotiations failed, wittingly or unwittingly, in their duty to the nation.

As I said in a U. S. Chamber of Commerce meeting last September:

> The industry might have fought vigorously for less extreme terms. Better yet, it might have discussed the matter with John Lewis on broad grounds of public policy, affecting miners' interests as well as those of their employers. In default of obtaining more reasonable terms by these means, the problem might have been brought before the bar of public opinion, so that its true nature as a question of public policy was revealed. It could have been submitted to arbitration.

None of these courses was pursued. A complete surrender on major points was accomplished.

Having surrendered, the U. S. Steel Corporation raised its prices, as I have already stated, announcing that the increase was not connected with the coal settlement. This left the way clear for a further boost in the price of steel later on the basis of the increased cost of coal. Should the corporation have raised its prices? Prices should cover costs, including a normal profit rate, but in the public interest they should not be increased at this particular time to include excessive profits or excessive depreciation. Full employment and stability are promoted by a high-wage, low-profit per unit economy. To implement full employment, the rate of depreciation and the rate of business profits need to be brought into relation with the requirements of continuing equilibrium in a dynamic society. This means a low-pricing policy.

Now it is dangerous for an outsider to pass judgment on the wisdom of these price rises. I myself hesitate to do so. There were without doubt inequalities in pricing left over from OPA controls. But I do know that the business which makes a price rise at this time is shoveling fuel onto the fires of inflation. Price setting as well as wage setting has become a public responsibility for our major industries.

It is possible to draw an ominous parallel between this economic event of 1947 and a certain political event, of 1938—between the coal settlement and the Munich Pact with the Nazis. In both cases peace seemed to be of such supreme importance that almost everything else was sacrificed for it. If the peril of inflation under full employment is as alarming as it seems to be, the parallel holds. Peace has been purchased, but at too high a price to be repeated. It has been purchased at the price of mounting and uncontrolled inflation, which in the past has always ended in a precipitate and correspondingly deep depression. Such a depression would be a sad end to our hopes for maintained high employment, production and consumption.

Let us take another look at Munich. The appeasement and its immediately following events seemed like a great victory for Germany. But where are the Germans now? They suffered the worst fate of all. This Lewis appeasement cannot in the long run produce any benefits to the miners, if our analysis is correct. Some of them at least suspect this. The Associated Press in the *Washington Post* for July 9 reports one miner, soberly returning to work, as saying: "I hope these wage raises don't go out the window in the higher cost of pork chops. It's the best contract we ever had, but it's likely to hit us right in the breadbasket."

There is yet another link in the mechanism of inflation where automatic operating economic forces need to be tempered by ethical judgment.

The demands for higher wages are supported by increasing living costs. Increasing living costs are almost entirely produced by increasing food costs. Most of the food costs are under control as compared with the cost of meat. The law of supply and demand rather than any profiteering all the way from the stockyards to the consumer is what is setting the price of meat. In a way, therefore, the whole problem of inflation focuses down onto this one food. Unless we can reduce effective demand by voluntary rationing, I have come to the reluctant conclusion that we will have to institute statutory rationing in this one food product.

Price control will not be needed. The law of supply and demand will take care of price if we can control effective demand at the consumer level by rationing. Furthermore, rationing will more equitably distribute the available supply. That great body of consumers who are being left behind in the inflationary race for higher incomes will have access to a regulated supply of lower priced meat under rationing. This is denied to them now.

It must come as something of a shock to realize that we are right now reaching the limitations of food production in this country so far as the important staples are concerned. It is the European emergency which has brought us to this realization. When we have a requirement for European relief of one-third of an unprecedented and probably unrepeatable wheat crop of 1,400,000,000 bushels, and when this requirement comes on top of full employment with an unprecedented domestic demand on food production of types allied to grain production, we suddenly find ourselves bumping the ceiling of this country's resources.

In large measure the domestic market resulting from full employment is the thing that needs looking at. It has demanded a meat production per capita for which we have to go back to the year 1909 to find any precedent. In that year the population of our country was only about 91,922,266. Today that population is about 142,000,000. The range acreage and the feed-grain acreage now no longer exist to produce a higher per capita consumption with our increased population.

For one thing the world demand for wheat has been so great that we have again ploughed far into range lands which should have been left in grass. We are again preparing for a dust bowl. In so doing the best range lands are being reduced and our capacity to produce meat animals is correspondingly diminished.

The desire for a given amount of nourishment from meat as compared with demand for the same nourishment from grain is a serious drain on grain supplies. It means that for the same amount of calories we have to use from three to ten times as much grain for meat as for direct consumption.

Now, so far as food is concerned, the desire for a higher standard of living expresses itself principally in a desire for more and better meat. On this we have reached the limit. That limit was lowered, it is true, by the failure of the corn harvest, but the unprecedented wheat harvest helped to maintain it. We have no right to expect as good grain harvests again next year or the year after, or more than exceptionally in the years to come. We have reached the limit on domestic production and consumption and must find some way of adjusting ourselves to that unpleasant fact.

Permanent adjustment will come as the income of the depressed groups is adjusted upward, as they may be if the moving spiral of inflation is arrested. Then meat price can safely be left to find its natural level, and all elements of society will find the supply more equitably adjusted.

But meanwhile governmental intervention threatens one of our few remaining free markets—that for livestock. Why should the stock raiser and feeder be denied the privilege of free markets? It is because he, too, as well as business and labor, must make his contribution to the public good.

For the public good his prices must not be allowed to sink below the level which will bring out high production. If set at or near this level there is room for considerable reduction in meat cost, high production is assured, and the farmers on range and feed lot get a good return for their investment and effort. That it would be less than at present is a measure of the sacrifice which they can put alongside that of business and labor in the joint effort to arrest inflation and lessen the personal hardships which inflation entails.

Let us sum up these actions necessary for arresting inflation while maintaining employment, production, and consumption. Not all the helpful actions are listed—only those having an ethical content. Policies of government, labor, and business are concerned.

As to lowering the inflationary ceiling, we have discussed a fiscal policy which would not ordinarily be considered a political asset for the party proposing it. The tax proposals made have little evident political appeal.

As to arresting the machinery of inflation which operates below the ceiling we are suggesting that government contribute to slowing down the rise in living cost by rationing the largest factor—meat. This would run counter to the immediate self-interest of stock raisers and feeders and would have to be sold to them on ethical grounds.

Business is asked to contribute by withholding further price advances particularly in products which affect the cost of living. It would be better yet to have some price lowering here and there. This need comes at a time when business profits on the whole have been as high as they have ever been in our peacetime history. In some cases the price cut could not be large, particularly where these high profits are made by small margins on rapid turnover, but it should be made as a token that the serious dangers which are arising from unarrested inflation are appreciated.

With government (at some expense to stock raisers and feeders) and business taking action which should arrest the rise in the cost of living, public opinion will be so strong on the side of stability that the threatened wage increases would not be pressed to a conclusion. We would then be in at least as good a position as we were last spring before the coal miners' agreement set us off anew on the inflationary climb.

Of those asked to make sacrifice of immediate interest for the long-range common good, it is probable that the businessmen will protest most vigorously. An example of this is to be found in an article in the Business Section of the *New York Times* of Sunday, December 21.

Mr. Hartley W. Barclay in that issue writes an article entitled, "New Law Termed Spur to Inflation." Reference is here made to the anti-inflation legislation passed in the session of Congress just completed. Leaving that question aside, the article does indicate that some corporation's spokesman "feared the bill would eventually result in 'placing the blame solely upon industry.' They said this legislation assumes that business executives have some special ability to keep prices down regardless of conditions of supply and demand, wages and raw materials costs and taxes."

They do have this ability within the limits of their profit margins. This ability has been shown by the action of the automobile builders in not raising their prices to the economic level. In an age of large, nation-wide, and commanding industrial units, other corporations can do the same. They must do the same as a part of their contribution to holding the cost of living in check and through this means arresting the present inflationary movement.

What are these ethical questions anyway, with reference to which it is suggested that the wages of labor and the profits of industry and agriculture should be placed under self-restraint? It may well be that ethics is only long-range self-interest.

Many years ago a disciple of William James whose name I have forgotten wrote a little thin book entitled, *The Foundations of Ethics.* The thesis of that book was that ethical action and action taken in long-range self-interest are one and the same thing. His contention was so carefully supported by his argument that ever since reading it, it has been difficult for me to define ethical action in any other way.

In any event the necessary actions which have been called "ethical" in this address are of a kind which definitely come under the heading of long-range self-interest, as distinguished from short-range self-interest. To get them into action there is therefore needed a more intelligent view of what will benefit one's party, one's business, and oneself in the years to come rather than looking for the advantage to be gained for tomorrow or next week.

If we can be brought to see our own best interests clearly enough, it may well be that ethics and economics will cease to be in even apparent conflict, and we will all move forward together on a new plane of material and spiritual well-being.

This address has been prepared with the hope of drawing sharp attention to the need for this pull of self-interest at a higher level than is ordinarily considered to be effective in conventional economics.

AN APPRAISAL OF THE TAFT-HARTLEY ACT[1]

By Edwin E. Witte
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It is now six months since the Taft-Hartley Act was passed over the President's veto. Any appraisal of the Act, however, must still be largely prospective.

While some important parts of the Act took effect immediately, the main body of the law was not effective until August 22, 1947, sixty days after passage. The most far-reaching provisions, those relating to union security, are still only partially in effect.

How important these are is indicated by the fact that of the 14,800,000 workers reported by the United States Bureau of Labor Statistics to have been employed under union contracts on January 1, 1947, more than two-thirds, 10,000,000 of them, were working under union security agreements. All these agreements are directly affected by the Taft-Hartley Act. The new law, however, affects these contracts at varying dates. Contracts concluded before June 23 remain in effect until their expiration. Quite a few employers and unions extended such contracts for long periods immediately prior to this date. The extension agreed upon between the New York Clothing Manufacturers and the Amalgamated Clothing Workers was for five years. Union security contracts concluded between June 23 and August 22 remain valid until their expiration or until August 22, 1948, whichever is the earlier. Dan Carmell, leading A.F.L. lawyer, has said that 78 per cent of all closed shop contracts with A.F.L. unions, were extended during this period and will not expire, in most cases, until next August. It is only as to contracts not thus extended and which have expired since passage of the Taft-Hartley Act that the union security provisions are now operative.

With reference to provisions which are now fully in effect also real tests are still mainly in the preliminary stages. According to an announcement made by the General Counsel on December 16, 930 unfair labor practices charges had been filed since the taking effect of the Taft-Hartley Act, three-fourths of them against employers, one-fourth against unions. In only 11 of these cases, however, had the General Counsel issued complaints—in 10 cases against unions, in 1 against an employer. Only 1 of these 11 cases had progressed to the stage of the examiners' intermediate report; and in that case the examiner had held against Mr. Denham. The National Labor Relations Board had not acted on a single unfair labor practices charge premised on the Taft-Hartley Act and Chairman Herzog has said that it cannot be expected to do so for several months. Major decisions of the Board construing the Act almost certainly will be taken to the courts, and it may be a year or more before the Supreme Court authoritatively interprets even a single new provision.

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[1] This address was presented at a luncheon meeting of the American Economic Association on December 29, 1947.

To date, the National Labor Relations Board has been mainly concerned with revising its rules and adapting its organization to the new law, plus the disposition of old cases which were on its dockets when the Taft-Hartley Act became effective. Recently the regional offices have begun to conduct a considerable number of representation and decertification elections and a rapidly growing number of elections to determine whether workers want a union shop.

The largest number of decisions involving interpretations of the new law have concerned the provision that the Board shall not issue complaints in unfair labor practices cases or conduct any investigations in representation proceedings unless all officers of the petitioning union and the international of which it is a part have filed noncommunist affidavits. In its first decision, early in October, the Board overruled the construction by the General Counsel that such affidavits must be filed also by the officers of the federations with which the international unions are affiliated. In subsequent cases the Board has determined what is to be done with unfair labor practices and representation cases initiated prior to the effective date of the new law by unions whose officers have not filed the noncommunist affidavits. It has held that all of these old representation cases must be thrown out, including even those in which a noncomplying union had won the election prior to August 22. The Board has also held that even where a noncomplying union has been the certified bargaining agent, its name cannot go on the ballot in any election and in the Remington-Rand case that company gave this fact as its reason for ceasing to longer recognize the United Electrical, Radio and Machine Workers—with the apparent blessing of Mr. Denham, the General Counsel of the National Labor Relations Board. On the other hand, the Board has held that in unfair labor practices cases not only must orders which were outstanding on August 22 be observed even when they involve noncomplying unions, but that it has a right to proceed with unfinished cases involving such unions in which it had issued complaints prior to that date. It will not, however, issue any order directing an employer to bargain with such a union.

This about exhausts the cases which have come before the National Labor Relations Board under the Taft-Hartley Act. In addition, quite a few cases have been brought in the courts under the provisions of this Act. In numerous cases employers have asked the General Counsel to exercise the authority conferred upon him by this Act to apply to the federal courts for an injunction restraining the commission of unfair labor practices pending a hearing before an examiner of the Board. In less than 10 cases—all of them against unions and all involving alleged boycotts in which it is mandatory for him to do so—the General Counsel has applied for such injunctions. In only two cases has an injunction been issued, while the Court refused the General Counsel's request for an injunction in one case. Employers have brought suits for damages in the courts against unions premised upon the Taft-Hartley Act in at least a dozen cases, most of them also based upon boycotts. Not one of these damage actions has yet come to trial. In several state court cases the Taft-Hartley Act has been cited in justification of injunctions issued against unions, but it is doubtful whether in any of these cases the new law was really determining.

It is much more difficult to be positive about the effects of the Taft-Hartley Act apart from legal proceedings. Not only is the available information very scanty, but it is largely a matter of opinion what the Taft-Hartley Act has had to do with the developments.

One thing that is certain is that strike losses have been small since the Taft-Hartley Act became effective. How much the Act has had to do with this favorable development is debatable. The trend in man-days lost through strikes has been downward ever since February, 1946. Long before the Taft-Hartley Act they were less than the normal prewar strike losses. The downward trend has continued since passage of the Act. Not a single strike of much national import has occurred. The only major labor dispute in which a strike appeared imminent was the recent threatened telegraphers' strike against the Western Union, which, at least temporarily, has been postponed by appointment of a fact-finding board. But relatively few union contracts have expired since August 22 and none of the major agreements. Mr. Ching, the Director of the National Mediation and Conciliation Service, on Saturday "went out on a limb," as he expressed it, and predicted that 1948 would be a year of but few strikes. I hope he will be proven correct, but not until next spring and summer will there be any test of the value of the new legislation as a strike preventative. And even if at that time we should have few strikes, we still will not know whether this is a result of the Taft-Hartley Act or of full employment.

With reference to the types of strikes which are made illegal by the Taft-Hartley Act, also, it is too early to be at all certain about the operation of the law. Most of the charges of unfair labor practices against unions have concerned boycotts. This seems to be in part a result of the provision of the law which makes it mandatory for the

General Counsel to seek an injunction when he issues a complaint in a boycott case. As noted, two such injunctions have to date been issued and they seem to have put an end to the strikes against which they were directed. Despite these injunctions, however, no unions have abandoned or modified their rules against handling or working with nonunion or struck materials. Similarly, while quite a few unfair labor practices have been premised upon jurisdictional strikes and high hopes are entertained that the building trades will now adopt effective means of settling such disputes, nothing definite has yet been accomplished. And the only important result to date of the restrictions upon employer payments to union welfare funds has been Mr. Petrillo's announcement that when present contracts expire the musicians will make no more records.

With regard to the effect of the Taft-Hartley Act upon the unions, even statistics are lacking. The two great labor federations at their annual conventions in October reported further gains in membership, and the American Federation of Labor gave detailed figures in support of this claim. On the other hand, there is little doubt that union organization has been decidedly slowed up. Such increase in union membership as has occurred has resulted from increased employment in unionized plants rather than from the organization of new plants. The southern organization drives of both the A.F.L. and C.I.O. have slowed down to inching gains. Far fewer representation elections have been held in the months since enactment of the Taft-Hartley Act than previously. While in a majority of these elections the unions have won, the margins have been narrower and recently the C.I.O. has lost more elections than it has won. Unlike prior to the Taft-Hartley Act, independent unions have made the best showing in the percentage of the elections which they have won and have been most active in initiating representation proceedings, including a growing number of decertification proceedings in which they have challenged certified affiliated unions. Hopes which were widely entertained among union leaders that employers might be persuaded to recognize unions without elections conducted by the NLRB have proven disappointing.

On balance, the available evidence points strongly to an adverse effect upon union growth from the new legislation. The Foremen's Association of America has received a blow from which it may not recover. It has lost its principal contract, that with Ford Motors, and its president and founder has resigned and is now counseling that the foremen seek affiliation with the United Automobile Workers, C.I.O. Reports are multiplying that employers who have bargained for plant guards with the unions of production workers in which they have membership are refusing to continue doing so. Production workers' unions generally, however, have held their own but have made few gains, and that at a time of peak employment. Union organizers report that some unorganized workers are fearful that they may be victimized and even thrown into jail if they join the unions. Certain it is that the unions suffered loss of prestige in the enactment of the Taft-Hartley Act; also, that the union leaders have devoted their major efforts to fighting the new legislation rather than to spreading union organization.

The effects upon union policies and the internal affairs of unions are even more difficult to appraise correctly. There is great unanimity among union leaders in their denunciation of the Taft-Hartley Act. Not a single official of an affiliated union has ever said even one word in favor of this law and this holds true almost literally also of all independent union leaders. All union groups have announced that they will try to defeat members of Congress who voted for the Taft-Hartley Act. Political activity on the part of unions is greater now than probably ever before other than at election time, despite the prohibition, under criminal penalties, in the new law of political expenditures from union funds.

But with this, unanimity among the unions ends. The Taft-Hartley Act has not healed the split in the labor movement and the several union camps have not gotten together even in their battle against the Congressmen who voted for the new law. Differences over the policies to be pursued resulted in John L. Lewis taking his mine workers out of the American Federation of Labor for a second time. Only beginning are efforts by A.F.L. craft unions to win bargaining rights for craftsmen heretofore included within industrial units represented by C.I.O. unions—a type of interunion warfare directly encouraged by the Taft-Hartley Act, which may lead to increased bitterness between the two major union groups ere long.

Internally, the new law seems to have helped right-wing elements in some unions to rid them of communist officials. Much progress had been made in freeing unions which had fallen under communist control before the Taft-Hartley Act was introduced. Both the A.F.L. and the C.I.O. had barred communists from holding union office, and quite a few international and local unions which once were communist controlled had been able to rid themselves of this baneful influence. But a considerable number of unions, particularly C.I.O. unions, were still officered in key positions by either communists or fellow travelers. Under the Taft-Hartley Act, some unions have discharged officers who refused to sign the noncommunist affidavits. But the process is by no means complete. None of the left-wing international unions in the C.I.O. have filed noncommunist affidavits. In their refusal to do so they are still supported by many right-wing unions. The Taft-Hartley Act, moreover, requires affidavits only to be filed by officers, leaving communists free to serve on bargaining committees and in other equally important positions. There also is nothing in the law which bars communists from resigning from the Party and then taking the required oath that they are not presently members, as indeed an ousted vice-president of the National Maritime Union, an acknowledged communist, offered to do if the union would restore him to his position.

Probably beneficial also has been the effect of the requirement that unions must file financial reports with the Secretary of Labor and make them available to their members. The great majority of all international unions have always published financial reports, but many local unions have not done so. To make it possible for them to qualify under the new law, a number of international unions have given help to their locals in setting up proper financial records and accounting procedures. To date only a small percentage of all the 50,000 to 100,000 local unions believed to exist in this country have qualified but it is expected that more will do so. It now seems probable that the noncommunist affidavit and financial reporting provisions will keep at least half of all union members from prosecuting unfair labor practices charges against employers through their unions. This is a decided gain in the prospects for compliance over the situation in the first months of the new law, when both the A.F.L. and the C.I.O. were "boycotting" the Board.

Next, consideration must be given to the effects of the new law on management's dealings with unions. Immediately after passage of the Taft-Hartley Act, responsible leaders within the ranks of management, among them Mr. Bunting, then the president of the National Manufacturers Association, uttered the warning: "Go slow, in trying to take advantage of the new law." Many companies issued statements to their employees that enactment of the Taft-Hartley Act would not make any difference in their labor-management relations and, specifically, that they had no intention of using the new law to get rid of their unions or to weaken them. A little later a few of the same companies issued statements to their employees very critical of unionism and specifically of the unions which are the collective bargaining representatives of their employees. More common, recently, have been statements telling the employees that the Taft-Hartley Act was passed for their benefit. The reasoning presented is that the Act was designed to curb irresponsible union leaders and to give the members control over their unions.

All these statements probably are much less important than what employers have done by way of charging unions with unfair labor practices and bringing on elections compelling certified unions to prove anew their right to represent the employers. Some comments favorable to the new law have stressed that four times as many unfair labor practices charges have been filed against employers as have been brought against unions. More detailed examination of the statistics discloses that half of all the unfair labor practices charges against employers have been brought by individuals, not by unions. As the law is written, while failure to file noncommunist affidavits and financial reports bars a union from bringing unfair labor practices charges against an employer, the members of such a union may file charges as individuals. This means separate cases for each union member alleged to have been discriminated against, while under the old law all were combined in a single action against the employer.

On my part, I have been surprised at the large number of unfair labor practices charges brought against unions. Almost without exception, however, these charges have been filed by small employers. Quite a few of these have been employers who long have been at war with the unions. In other cases, it appears that the charges against unions were filed during a strike, apparently in hope of getting some help from the National Labor Relations Board in beating the union, just as unions have often resorted to the Board during organizing campaigns and while strikes were in progress. The great majority of all employers, however, have made no use of the new law to date. Employers whose relations with their unions have been reasonably satisfactory have sought only to preserve these good relations.

The direct effects of the Taft-Hartley Act upon collective bargaining relations have been varied and obscure. As noted, relatively few contracts have expired since the Act became effective. Where contracts have not expired, the reports are pretty well agreed, relations have continued about as previously.

Where new contracts have had to be negotiated, the Act has presented the parties with new problems. The Executive's *Labor Letter,* a usually reliable management service, has recently reported that employers have been agreeably surprised at the reasonable attitude of most union representatives in bargaining conferences. But there is also much evidence that a great deal of attention has been given in these conferences to what might be called methods of getting around the Taft-Hartley Act. Union bargaining committees have often insisted that these matters be disposed of before they will agree upon the more prosaic issues of wages, vacations, grievance machinery, etc. Elaborate clauses to accomplish this purpose have been prepared by labor lawyers and have been placed in the hands of the union negotiators. Very commonly, also, international unions have insisted upon a much larger role in the conclusion of new agreements than they have had previously.

Agreements which have resulted have often been much longer and more detailed than the previous contracts. In extreme cases, the new contracts have devoted many times as much space to trying to get around the new law as to the conditions of employment.

The two matters growing out of the Taft-Hartley Act about which the unions have been most concerned are liability for breach of the agreements and the union security provisions. Directly after passage of the Act, the American Federation of Labor advised its affiliates to enter into no more agreements including a "no-strike" clause. It is this clause alone which unions normally can conceivably violate, as all the rest of the labor-management agreement relates to the conditions the employer will observe in employing labor. John L. Lewis in the coal contracts was successful in getting out the no-strike provisions previously included. In lieu thereof, he got a clause specifically reciting that no penalties shall be assessed against the United Mine Workers or their local for any strikes, and, further, that the entire contract should be binding only so long as the miners are willing and able to work. Some other unions, similarly, have gotten no-strike clauses out of their contracts. More commonly, the new contracts qualify the no-strike clause by provisions to the effect that the union shall not be held responsible for any strike it has not specifically called or authorized. With this often goes a detailed statement as to who are the officers who have authority to act for the union in connection with strikes—generally only top union officials.

With reference to the union security provisions previously included in the labor-management agreements, unions have adopted varying attitudes, differing among unions and in different situations. As has been noted, the unions in literally thousands of cases were able prior to August 22 to get employers to extend the union security provisions for a year or more. In some of these cases they had to forego or reduce wage demands to get this concession. Where contracts have expired since August 22, the unions likewise have generally sought to retain union security in some form and in numerous instances have succeeded in doing so.

Two types of union security can be validly established under the Taft-Hartley Act: a union shop and the voluntary checkoff. Many unions, particularly recently, have contented themselves with getting the employer to agree to a union shop election, with a promise on his part that he would include a provision for a union shop in the union contract if a majority of the employees voted for the same. This attitude has been taken by unions which have previously had either a closed or union shop, so that there were few nonunion men in the establishment. Petitions for union shop elections in November exceeded all other types of NLRB elections and are rapidly increasing. The other valid form of union security is a voluntary checkoff, which some unions deem more valuable than the union shop as it is restricted in the Taft-Hartley Act. Peculiarly, while a strike to win a union shop before an election appears to be illegal and a checkoff without a prior individual written authorization is a criminal offense, a strike for the checkoff is legal. Nor does the law require that the union must get the authorizations for the checkoff, only that the employer must have them before he can make deductions of dues. So we have already witnessed the phenomenon of a refusal by union members to work until the employer had gotten checkoff authorizations from all the employees.

Plus these clearly valid methods of union security, many more doubtful methods have been employed. To these the term "bootleg contracts" is being applied. A favorite method has been for the union to give notice of a desire to change only provisions other than those relating to union security on the expiration of the contract. The resulting contracts are cast in the form of amendments to the prior contracts, without mentioning union security, but with a mutual understanding that the old terms will continue. While there is doubt about the legality of such an arrangement, many employers have gone along with the unions in thus continuing the closed shop. Even the Chicago newspapers are reported to have been willing to do this in their negotiations preceding the Typographical Union strike. Certain it is that the *Chicago Tribune,* in an editorial published after the strike had begun, stated that it regarded the prohibition of the closed shop in the Taft-Hartley Act to be a mistake. In other situations, unions have been willing to work without contracts or to make no mention of union security in the new contracts, where previously they have had a closed shop. These have been situations where the union felt that it could hold all employees even if a closed shop was not stipulated in the contract. All in all, the conclusion seems to be warranted that unions have thus far pretty well succeeded in holding the closed shop where it previously existed; but it is to be repeated, the real test will come when the many closed shop contracts which were extended before August 22 expire next year.

This, it seems to me, is all of much importance that can be said about the actual experience under the Taft-Hartley Act. The results to date, I believe, do not justify the appraisals of the partisans on either side. The Taft-Hartley Act is not "a slave labor act" nor "an act freeing the slaves"—the slogans of the opposing camps. There is little in operation of the Taft-Hartley Act which can be cited in support of the claim of Lee Pressman, General Counsel of the C.I.O., that virtually all effective protection to union workers or to unorganized workers against unfair practices by employers has been eliminated." Equally unsupported is the statement of Mr. Denham, the General Counsel of the National Labor Relations Board, that the new law "has given us a comprehensive piece of legislative machinery that seems to have accomplished the impossible by providing a medium for the coordination of interests in our economic structure that heretofore have seemed so divergent as to be wholly incapable of coordination."

In contrast with such partisan estimates is Chairman Herzog's emphasis upon the fact that the Act is still in its infancy and his caution: "If history teaches us anything it is the folly of prophecy and the wisdom of patience." While agreeing with this position, I, nevertheless, interpret my assignment to call for something more than a recital of the experience to date under the new law. This is to give you my ideas on the over-all character and effects of the Taft-Hartley Act. In doing so, I lay no claim to special insight and freely grant that the views of others may prove more sound than mine.

In characterizing the Act, the term applied to it by the *New York Times* while it was before Congress, "labor-union control act," seems to me quite accurate. The Taft-Hartley Act does not destroy the protection afforded labor unions by the Wagner Act, although in some respects it weakens this protection. But there is not one of the dozens of new provisions which in any respect favor the unions. While the old list of unfair labor practices of employers is retained, the change made in the closed shop proviso makes this a restriction upon the unions. The Act also adds a list of unfair labor practices of unions which besides paralleling all the unfair labor practices of employers, adds a considerable number of practices prohibited to unions for which there is no parallel in the list of the unfair labor practices of employers. The Act also allows employers to sue unions for damages for many of these acts and makes it mandatory for the NLRB to seek injunctions against them, in advance of any hearings without giving workers the same remedies against the unfair labor practices of employers. While a union cannot have or even demand a union shop until after an affirmative vote of a majority of all employees in the unit, the employer is not obligated to give them a union shop even after such a vote. Many of the acts of unions which are made unfair labor practices or even criminal offenses were legal before the Wagner Act. In such important respects as agreements for union security and assistance given to fellow unionists through refusal to work on struck or other "unfair" materials, the unions now are in a distinctly less favorable position than if Congress had repealed the National Labor Relations Act in its entirety and let it go at that. For many of the most stable of our unions, the Taft-Hartley Act compels changes in practices and policies which they have pursued for many decades and to which the employers with whom they deal have seldom voiced objections.

The claim that the Act restricts not the unions but irresponsible union leaders seems to me not to be borne out by its provisions. There is not a single provision which in any direct manner restricts union leaders, apart from the restrictions upon unions. Nor does the Act include even one provision which insures greater democracy in unions. Whether the restrictions imposed upon the unions are desirable or undesirable is debatable. But it borders on hypocrisy to claim that this is other than an Act to regulate and restrict unions and their activities.

It is also my opinion that the Taft-Hartley Act places new restrictions upon employers as well as upon the unions, although these restrictions give no additional rights to the unions. Most important in this connection again are the union security provisions. That closed shop contracts have not been of advantage solely to the unions is suggested by the fact that practically all of the witnesses in the Congressional hearings who called for legislation against the closed shop were employers who have never had the closed shop. Many employers have found the closed shop very valuable in stabilizing labor relations and some, like Henry Ford, have insisted upon such provisions. Now the employers, no less than the unions, are seriously restricted in what they can do in this respect. Nor are these the only new restrictions upon employers. The record companies probably would be glad to continue payment of royalties to the Musicians' Union after their present contracts providing for such payments expire, but the Taft-Hartley Act prevents them from doing so and, in consequence, they are now faced with the possibility of not being able to produce any records. Restrictive also are the provisions prescribing the procedures which must be followed in collective bargaining. These provisions may well be held to make it an unfair labor practice for an employer to refuse to bargain in good faith about what employers regard as their "management rights." Potentially very dangerous to employers, although not utilized to any extent to date, is the fact that they may now be sued in the federal courts, regardless of the amount involved, for every alleged contract violation. This might well result in suits upon every grievance, where the contract does not provide complete machinery for the settlement of grievances.

An important aspect of the new law is the greatly increased governmental interference in labor relations which it incorporates. As George W. Taylor developed very clearly in his address at the recent convention of the National Association of Manufacturers, the Wagner Act represented an extension of governmental interference in labor-management relations, which may or may not have been wise. But that interference went no further than the precollective bargaining stage of union organization. That Act left both the processes of bargaining and the terms of the bargain to labor and management. The Taft-Hartley Act leaves largely intact the provisions for governmental interference in the precollective bargaining stage. To them it adds extensions of governmental regulation in two major respects. It specifies in detail the procedures to be followed in collective bargaining and on many matters which have customarily been dealt with in collective bargaining—union security, welfare, grievance procedure, make-work rules, and still others; it prescribes what labor and management may agree upon.

George Taylor concluded his revealing analysis with the question: "Is the Taft-Hartley Act the high-water mark of direct government participation in industrial relations, or the first of a long series of steps to limit the latitude of labor and management in their joint dealings?" Hearings on additional labor relations legislation have been scheduled to begin next month both before the House Committee on Education and Labor and the Joint Committee to observe the operations of the new law provided for in the Taft-Hartley Act. All discussion at this time seems to center upon further restrictions upon unions; but in this connection the warning issued by Cyrus Ching, several years ago, deserves to be remembered, that restrictions upon unions will inevitably lead to additional restrictions upon employers. Whatever the future may bring, the fact that the Taft-Hartley Act restricts the freedom of collective bargaining and on many matters limits what labor and management may agree upon is not open to question.

One aspect of the increased participation by government in labor-management relations meriting special comment is the increased resort to the courts which the Taft-Hartley Act encourages. NLRB proceedings are no longer the exclusive remedy for unfair labor practices, as under the Wagner Act. It is expressly provided that unions may be sued for damages for a number of these practices, and it is at least possible that the Act will be construed to permit both employers and unions to go to the courts for the correction of any unfair labor practice. The Act allows the General Counsel to seek restraining orders from the federal courts in any unfair labor practices case, as soon as he issues a complaint and before any hearing. It makes it mandatory that he get such injunctions against at least three different types of strikes and boycotts. This is still a far cry from a complete return to the unrestricted use of injunctions in labor disputes; but it is not only the National Labor Relations Board and its General Counsel whose role in labor relations is increased, but also that of the courts.

Leaving with these few observations the provisions of the Act and returning to its effects, a development not previously noted seems to me to be more important than any of the concrete occurrences since passage of the new law. This is the pattern of thought on the Taft-Hartley Act which has developed among union members. In a public opinion poll soon after passage of the Act a majority of the union members expressed opposition to the Act although a majority favored every one of the ten changes made in this law about which special questions were asked. Many comments upon this poll have been to the effect that the union members are being misled by their leaders about the provisions of the Act. This belief seems to underlie many of the efforts now being made by employers to give their employees correct information about the new law.

I doubt the correctness of such an interpretation. Not only do we not have any information upon whether a majority of the union members interviewed believed all ten of the changes to be desirable, but no questions were asked about some of the most important provisions. But whether union members are correctly informed and intelligent in their attitude is not the most important aspect of this poll. This is the strong majority opposed to the Taft-Hartley Act. No similar poll has been conducted since, but it is my belief that the majority among union members opposed to the Taft-Hartley Act is greater today than it was at the time of the passage of the Act.

It is coming to be regarded among union men as near treason to say anything good about the new law. Everything that workers do not like is branded a result of the Taft-Hartley Act—failure to get as large wage increases as demanded, all disagreements with employers, yes, and even high prices and large corporate profits. This feeling that the law is "pro-employer" is likely to be heightened by every proceeding against unions and by the loss of contract provisions long operative which are now outlawed. And as George Taylor warned the manufacturers, the existing feeling "can be accentuated by any so-called information programs in support of the law which appear to drive a wedge between the union and its members."

The pattern of thought which has developed among union members regarding the Taft-Hartley Act is akin to that which employers held with reference to the Wagner Act. There is little question that a majority of the employers would have voted for each of the three major provisions of the Wagner Act: the prohibition against employer control of unions, the prohibition against discrimination for union membership, and the requirement that employers must bargain collectively with representatives freely selected by a majority of their employees. But employers considered the Wagner Act one-sided and unfair, and ascribed to it most of their labor relations troubles.

What it all comes to is that the Taft-Hartley Act is starting out with the same handicaps which plagued the Wagner Act. The shoe is now on the other foot but the wearer likes it no better. Unlike the Railway Labor Act, neither the Wagner Act nor the Taft-Hartley Act was agreed-to legislation. The new Act is legislation which was strongly contested and is bitterly resented by the losing side. It has aroused a pattern of thought which, true or false, will make it more difficult for many employers to maintain satisfactory relations with their unions and to get the wholehearted co-operation of their employees.

At this point I must recall Chairman Herzog's profound warning about the folly of prophecy and the wisdom of patience, which I have violated. I have such faith in the United States and in both labor and management in this country that I do not expect the Taft-Hartley Act to create industrial chaos or national disunity in a time when our democratic way of life is on trial throughout the world. Despite governmental interference through the Wagner Act, we made great progress toward improved labor relations while that Act was in effect.

It may turn out that the Taft-Hartley Act also will work out for the good. Organized labor may need a time to digest and consolidate the great gains it has made. In adversity, labor may be able to regain the support of public opinion and a more devoted loyalty of its own members. The many managements which have won the confidence of their employees will not inevitably be defeated in their efforts to gain unstinted co-operation. Where labor and management both want to make a success of their mutual relations, I believe this can be done under the Taft-Hartley Act no less than under the old National Labor Relations Act.

If we are to have favorable results from this new law, however, they will come, not by reason of governmental action, but through the preservation and extension of genuine collective bargaining. I believe the National Labor Relations Board as now constituted to be well qualified and eminently fair. I also believe it quite appropriate that such an ardent protagonist for the new law as Mr. Denham should have the top prosecuting position. But as I see it the attainment of sound labor relations will not depend mainly upon what these or any public officials may do. So long as we have a system of free enterprise, in which I thoroughly believe, long-run satisfactory relations between labor and management can be developed only through understanding and a give and take growing out of mutual trust and confidence.

The new law and the present situation present new problems and difficulties to both labor and management. Unions will have to act with a wisdom they have seldom exhibited. They are, indeed, now in a position between Scylla and Charybdis, or should I say "the devil and the deep blue sea." If they fail to co-operate in giving the new law a fair trial and also if in 1948, when so many of the major contracts expire, we have many strikes, they will further turn public opinion against them and thereby bring on additional restrictions. On the other hand, rising prices and costs of living make it difficult to avoid strikes unless management agrees to reasonable wage increases.

Management also faces a period of real trial. As George Taylor expressed it:

> Any management satisfaction derived from immediate setbacks to organized labor's program should be tempered by a realization that under present policy significant terms of the employment relationship are to be determined by the government. Since political power rather than economic power then becomes the final arbitrament, the new labor policy as it evolves may even prove to be more detrimental to industry than to organized labor.

Which leads to the sound advice given management by Chairman Herzog in his first speech on the new Act, delivered to the American Management Association in October:

> Management now holds the spotlight as labor did from 1935 to 1947. Public scrutiny of management's actions under the new statute will be supplemented, plant by plant, by that of the employees affected by any change of company policy. The question will be, "How is management using the new powers it has acquired by the passage of the new law?" and not merely "Are the labor unions obeying the law?" . . . Surely management will want to recognize the implications of this challenge by advocating and practicing restraint. By your example you are most likely to encourage similar restraint by labor, thereby assuring national unity in a period in which America must play a strong role in a troubled world.

Under the new Act it has become more important than ever that collective bargaining be made to work for mutual advantage and in the public interest. If it does not do so, further governmental regulation of labor relations seems inevitable. Whether that will occur will depend primarily upon labor and management.

FISCAL POLICY IN PROSPERITY AND DEPRESSION

FISCAL POLICY IN PROSPERITY AND DEPRESSION

By RICHARD A. MUSGRAVE
Board of Governors of the Federal Reserve System

The objectives of public revenue and expenditure policies go beyond their traditional service and redistribution functions. Budget policy, also, is vitally important as a positive instrument of economic control. It is this latter function which is usually referred to as fiscal policy and with which this discussion is concerned.

After fifteen years of debate, the principles of fiscal policy are well established. The argument in its barest outline is: (1) that high employment and price-level stability require aggregate expenditures just sufficient to take the high employment output, valued in current prices, off the market; (2) that this condition is not met automatically in our economy where private demand is subject to violent swings and where severe deflation or inflation may prevail for sustained periods; and (3) that compensatory budget policy offers one device, among others, for holding total expenditures fairly close to the proper level. By providing incentives for private outlays or adding more to the income stream on the expenditure side of the budget than is being withdrawn on the revenue side, deflation may be counteracted; by deterring private outlays or withdrawing more than is being added, inflation may be curbed. While born and reared in an environment of deflation and unemployment, the principles of fiscal policy apply no less to the boom and war economy.

These propositions may be qualified or stated in different terms, but most would accept their essential logic. Our time will be spent more profitably, therefore, if we proceed at once to certain issues of implementation which are more controversial.

I

Adjusting the size of deficit or surplus is the core of compensatory finance. If there is a need for checking inflation, the deficit should be reduced or the surplus be raised; if there is a need for checking deflation, the surplus should be reduced or the deficit be increased. While some tax revenues may be less deflationary than some loan receipts, this is not the usual case and we shall be safe to assume that changes in surplus and deficit will be reflected directly in a change of disposable income and private demand.

Whether the question is one of moving in the direction of greater surplus or deficit, the required compensatory effect may be accomplished by acting upon the level of public expenditures or the level of tax rates. During the depression of the thirties when the early discussions of compensatory policy occurred, compensatory action was visualized largely in the form of deficit spending, implying the need for an absolute increase in the expenditure budget. By now it is recognized that antideflation measures may also take the form of tax reduction.[1] Similarly, inflation may be met either by lowering expenditures or raising tax rates.

This is not to say that the choice between the two approaches is a matter of indifference. The leverage effect per dollar of deficit (or the negative leverage per dollar of surplus) will differ with the technique used. If the deficit dollar reflects an increase in public expenditures on goods and services, the leverage will be greater than if it reflects transfer expenditures or tax reduction, unless the beneficiary's marginal propensity to consume is unity, which is unlikely. Under conditions of inflation, similarly, reduction in public expenditures will be more effective, per dollar of surplus, than increase in tax rates. Also, there may be substantial differences between the two approaches arising from political and other factors.[2] At times, these may be decisive. Under conditions of acute depression, for instance, relieving immediate distress is more important than providing for general income leverage, and until these immediate objectives are met, relief or public work outlays are preferable to tax reduction. Under conditions of wartime inflation, reduction in public expenditures, even though more helpful as an anti-inflation device, may not be feasible, so that reliance has to be placed upon tax adjustments. But granting these differences between the two approaches, it is more important for our purposes to note that the compensatory objective *can* be operated in either way.[3] The distance between Chicago and Cambridge is less than appears at first sight.

The two-dimensional character of the compensatory mechanism is important, because it permits us to dissolve a latent conflict between considerations of compensatory finance and considerations of optimum allocation of resources. Consider briefly a model of rational compensatory policy. Public expenditures, in such a model, would be planned on the basis of their usefulness relative to that of alternative (public or private) outlays. This allocation planning would be done on the assumption that resources are fully employed and tax rates would then be adjusted so as to provide such deficit or surplus as is needed to maintain high employment and prevent inflation. The distribution of the tax burden and of transfer expenditures would be eliminated by the community's preferences regarding the distribution of incomes. It is evident that there would be no make-work projects of any kind in such a system. Depending upon the availability of flexible projects, there would be, however, cyclical adaptation of expenditures within the basic blueprint of the longer run program.

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[1] As a matter of theoretical interest it should be noted that expansionary action may be obtained also by an equal increase in tax yields and expenditures, and contractive action by an equal reduction of both sides of the budget. A compensatory policy could thus be operated with a balanced budget. However, this proposition is of little practical interest. See my discussion of alternative approaches to budget policy in "Alternative Budgets for Full Employment," *American Economic Review*, June, 1945, p. 397.

[2] Considerations pertaining to the politics of fiscal policy are emphasized in *Taxes and the Budget: A Program for Prosperity in a Free Economy* (Committee for Economic Development, November, 1947).

[3] It is assumed that the initial level of taxation is sufficiently high enough in the depression case so that the problem can be met within the available scope of tax reduction to a zero level. While this was not the case in the thirties, it is a realistic assumption for, say, the next decade. This is one of the advantages of a large budget.

Actual policy, of course, will not fully comply with the rules of our model. Difficulties of prediction and delays of adjustment will render cyclical adaptations imperfect. Conditions may arise, for instance, where the planning of public expenditures cannot be conducted realistically on the basis of our full employment assumption since the opportunity cost of public utilization of resources may be merely unemployment.[4] But granting these imperfections, our model remains useful in demonstrating that there is no conflict, as an inherent matter of economic principle, between the objectives of compensatory finance and the objectives of optimum allocation of resources.

Given a fairly high level of tax rates, moreover, there is no necessary link between the idea of compensatory policy and a "large" or "small" budget philosophy. If we wish to check inflation without reducing public expenditures, we may usually do so by raising tax rates. If we wish to check deflation without raising public expenditures, we may do so by lowering tax rates. With a 30 or 40 billion dollar budget, the scope for tax reduction is likely to be quite adequate. Our preferences regarding the desirable level of public expenditures, therefore, should not be permitted to dominate our attitudes towards the use of compensatory policy.

Compensatory policy requires changes in the level of public expenditures and tax yields which will meet the needs of the economic situation. In part such movements result automatically through the mechanism of "built-in budget flexibility." But largely they require deliberate action.

The mechanism of built-in flexibility is this: If national income changes, the tax base and hence the yield derived from a given set of rates varies in the same direction. Moreover, there are certain public expenditure items, unemployment insurance in particular, which vary inversely with income. As a result, automatic and compensatory changes in surplus and deficit occur whenever income changes and thereby fluctuations in income are cushioned. To the extent that such reactions do occur and that the initial fluctuation is from a high employment level, they are to the good.[5] But what are the magnitudes involved?

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[4] No precise definition of "full" or "high" employment need be given in this context. The argument is much the same, though the policy job is simpler, if the definition is in terms of 2.5 rather than 1 million unemployed.

The ratio of tax yield to national income, which is a first determinant of built-in flexibility, is considerably higher now than it was before the war. Yet it is still relatively small and will decline in future years. The income elasticity of the average tax dollar, which is a second determinant, now stands at about 1.5. It has been raised somewhat above the prewar level by increased reliance on progressive taxation and the corporation income tax, but it cannot be raised very much further; prospective tax reforms, on the contrary, are likely to work in the opposite direction. The income elasticity of the average expenditure dollar, finally, may now be lower than in the thirties. On the whole, built-in flexibility is more important in the current setting than it was before the war, but its importance should not be overrated.

The automatic increase in budget surplus during current months is being helpful in meeting the inflation problem, especially with regard to credit control, and its shrinkage will be of help later when a depression sets in. Yet the automatic increase has been wholly insufficient to cope with the present problem of inflation, and it will also be insufficient to cope with a later problem of deflation. Using such assumptions as seem reasonable for a postinflation year, we estimate that built-in flexibility may be expected to dampen the amplitude of fluctuations by perhaps one-third of what they would have been in its absence.[6] Unless potential fluctuations in income will be so small in the future that they may be permitted largely to run their course—and there is no reason whatsoever to assume that this will be the case—the major compensatory contribution will still have to come from deliberate budget adjustments. In view of this, the principle of all but exclusive reliance on built-in flexibility, such as advocated in the recent C.E.D. report on fiscal policy, is quite unacceptable. If adopted it will lead to mentally and technically inadequate preparation for deliberate action.[7]

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[5] If the economy is in a situation of unemployment, built-in flexibility will check recovery. Note that the built-in *rate* flexibility suggested below may be adjusted so as to escape this shortcoming.

[6] For a discussion of this point see a note by R. A. Musgrave and Merton Miller, "Built-in Budget Flexibility," to appear in the *American Economic Review*, March, 1948.

[7] See Committee for Economic Development, *op. cit.* The C.E.D. principle, of course, is preferable to a rigid policy of "balance the budget all the time" and in political terms might be a good compromise formula. However, this does not make it good economics.

A further difficulty with the automatic budget policy arises in determining the initial level of tax rates which is to be left alone thereafter. The proposed formula "to set taxes

On the contrary, it is all important that we provide for a mechanism by which changes in expenditure levels or tax rates may be put into effect promptly and with a minimum of friction. On the expenditure side we are confronted with the familiar problem of the public work reserve and this is largely a matter of adequate appropriations and planning. On the tax side, the cumbersomeness of the legislative process looms as a more severe obstacle. One compromise approach might be through legislative provision for automatic changes in tax rates (and, perhaps, expenditure programs), such changes to be geared to fluctuations in an official index of income or employment. While built-in rate flexibility retains the disadvantage of being too mechanical—the same initial fluctuation in income or employment may under different conditions require quite different degrees of compensatory action—built-in *rate* flexibility might be of great quantitative importance and permit prompt adjustments without requiring Congressional delegation of authority to vary tax rates.

We need not labor the point that our case for compensatory finance is no case against the use of other policies. Adjustments in budget surplus and deficit can impose effective checks to inflation or deflation where the excess or deficiency in aggregate demand extends broadly throughout the economic system, and the crucial importance of compensatory policy derives from the fact that the state of the economy is frequently one where such conditions exist. However, this is not the entire problem. The general deficiency or excess in demand may be caused, and is usually accentuated, by specific maladjustments which will continue to grow after the difficulty has become general and which will require specific remedies.[8]

While it is quite likely that expansionary fiscal policy, if sufficiently vigorous and sustained, can prevent a period of severe and prolonged unemployment, there is less reason to be optimistic about the efficacy of compensatory action to check inflation. The politics of fiscal policy undoubtedly are less favorable to proper action under conditions of inflation when the problem is one of curtailing money income than under conditions of deflation when the problem is one of supplementing incomes.

Limitations more specifically applicable to the fiscal approach arise from the dynamics of the inflation process which makes supplementary

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so as to balance the budget at full employment" sounds attractive and may have some merit as a rule-of-thumb device, but it does not offer a satisfactory solution. The formula is satisfactory only if it can be assumed that in the average year a balanced budget is compatible with full employment. This assumption cannot be made and, accordingly, it is necessary to predict the economic outlook in order to determine the proper level of initial rate adjustment. Such prediction, of course, is most difficult if not impossible. Again, reliance will have to be placed upon periodic adjustment of rates.

[8] Such specific controls may also involve fiscal action, as for example in the case of subsidy policies during depression or capital gains taxation in the boom.

action along other lines (including credit and wage-profit controls) more urgent than in the deflation case. However, the lesser effectiveness in checking inflation also reflects more inherent difficulties in the fiscal approach to which our discussion will presently return.

II

But first let us turn to some issues of revenue and expenditure structure.

While the requirements of cycle policy are bound to be reflected in the expenditure pattern, expenditures should be based primarily upon considerations of need and usefulness of the projects as such.[9] Differences in the leverage effects of various expenditure projects exist, but they should not be overemphasized. Where relief expenditures are a more effective way to relieve distress in the depression, they should be preferred to public work outlays, even though a somewhat smaller leverage might result. Where public works are needed or are preferred as a matter of public morale, they should be given preference over relief even though they might involve a somewhat higher outlay per unemployed. At the same time, expenditure planning must account for the longer run as well as the more immediate merits of alternative expenditure projects. Thus developmental programs will not only be useful in an immediate sense but have an important bearing upon the secular level of private investment and the growth of real income.

Passing over a more detailed analysis of expenditure policies, let us turn to some questions of tax structure. Again we refer back to our model of rational budget policy where the level of expenditure, the expenditure pattern, the level of tax yield (rates), and the kind of taxes used are all interdependent parts of the same planning process. Keeping this in mind, it will be permissible for purposes of the present argument to separate out the problem of tax structure. This involves considerations of equity in income distribution and of the economic effects of alternative taxes upon income and employment. While considerations of equity are an important datum for the economist, they are primarily a matter of social philosophy. But what can the economist say about the requirements of a tax structure which is "good" in the sense of contributing most to the maintenance of high employment and price-level stability?

Immediate needs to the contrary, it will be convenient to begin with the case of deflation. Under conditions of deflation, there is little difficulty in establishing the rule that the economy will be the better off with any given level of tax yield, the less the average tax dollar depresses private expenditures on consumption and investment.

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[9] Note that the scale of need for various projects will itself change with economic conditions.

While the principle is simple, its application is difficult. With the use of the conventional type tax instrument at least, the deflationary pressure of the average tax dollar cannot be reduced greatly below its present level. Partly this is due to the fact that revenue changes which relieve tax pressure on consumption also tend to increase tax pressure on investment, and partly it is the case because there are inherent limitations to possible reductions in the consumption pressure of the average tax dollar. These points will be taken up briefly.

First, with regard to consumption. We have attempted to calculate changes in the consumption impact of the tax system which would result if one were to switch between various revenue structures all of which provide the same yield.[10] These calculations, the validity of which hinges largely upon the evidence of available saving patterns by income groups, suggest that the gain in terms of released consumption which might be obtained by increasing progression is limited. The reason, of course, is to be found in the relative constancy of the *marginal* propensity to save over the income range and the fact that notwithstanding a highly unequal income distribution, the bulk of income is received in the lower and middle groups. Also, a considerable degree of progression does already exist in the federal tax structure. If comparison was made at a 30 billion dollar yield level between the types of tax structure advocated on both extremes of the current range of tax proposals, I should doubt very much whether the level of consumption (at high employment income) under the most progressive proposals would exceed that under the least progressive plans by more than, say, 2 or 3 billion dollars. Measured from the present in-between position, the change would be correspondingly less. Thus it does not seem likely that the consumption effects of increased progression could go very far in offsetting a serious decline in private investment or downward shift in the consumption schedule.[11] This is not to say that a more powerful effect might not be achieved through the taxation of saving or hoarding as such, but proposals of this kind which involve considerable technical difficulty cannot be considered here.

Increased progression, moreover, may result in a reduced level of private investment which would provide an offset to initial gains in consumption. Depressing effects upon investment may result (1) because the supply of available investment funds is reduced and (2) because the willingness to invest available balances may fall off. With regard to the first possibility, a distinction must of course be drawn between the level of saving in general and the supply of particular kinds of savings. As long as the difficulty is one of an excess of intended saving, it does not make sense to talk about a shortage of savings in general. Yet a reduction in the level of savings may be reflected in the pattern of available savings, with the result that some type of investment is checked. Evaluation of this possibility is difficult, because relatively little is known about the qualitative composition of savings by income groups.

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[10] See R. A. Musgrave and Mary S. Painter, "Impact of Alternative Tax Structures on Consumption and Saving," a paper to be published in a forthcoming issue of the *Quarterly Journal of Economics*.

[11] As distinct from the optimistic view of earlier writers such as Hobson, this view now seems to be accepted by Keynesian theorists. See, for instance, Klein's extreme statement that "a redistribution of income will leave total consumption approximately unaffected." (*The Keynesian Revolution*, p. 59.)

More significant perhaps than the distribution of taxes paid by individuals is the extent to which the tax yield is derived from corporation savings, but even here there are obvious limitations if the yield total is large.

The extent to which increased progression may affect the willingness to risk the investment of available funds, depends greatly upon the way in which the tax base is defined. Provisions made for the offset of losses are of particular importance. Where losses can be offset against other taxable income the investor will save in taxes, if losses are incurred, what he must pay in taxes if gains are made. The return on risk taking (defined as the ratio between the probable gain and loss net of taxes) will not be reduced by the tax.[12] But the complete assurance of perfect loss offset does not exist, except perhaps in the case of very large corporations or wealthy individuals, and could not be given short of a refund scheme which would provide for negative taxes (bounties) in the case of losses. Apart from improvements in the definition of net income, a shift in the emphasis from progression through income taxation to progression through estate taxation might help. Estate taxation not only provides an automatic loss offset (if a loss is made the estate is reduced) but it is also more removed from the immediate profit motivations of the investor. Beyond this the investment effects of the tax structure should be improved by eliminating bounties currently granted to certain relatively riskless investments; i.e., tax exempt securities.

However, even though improvements of this kind are made, it is unlikely that they will wholly eliminate the effects of steep progression (and the inevitable result of high marginal rates) upon investment and, in a broader sense, upon entrepreneurial effort. The conclusion remains that there is an unhappy conflict between the least pressure principle as applied to consumption and the least pressure principle as applied to investment. The higher the level of tax yield the more painful does this conflict become.

But it must be asked, is this something to worry about? If conditions are deflationary and tax pressures on consumption and investment are too heavy, may we not simply reduce the level of tax yield until a proper balance is restored? Is it not the very purpose of tax finance to reduce disposable income to the extent to which this is necessary to avoid inflation, but not more? And if this is the case, why should a situation be permitted to arise in which the deflationary burden of taxation becomes excessive? There is a good deal of sense to Mr. Lerner's point.

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[12] See A. P. Lerner, *Economics of Control,* p. 235, and E. D. Domar and R. A. Musgrave, "Proportional Income Taxation and Risk Taking," *Quarterly Journal of Economics,* May, 1944, pp. 388-422.

A minor qualification arises because loan finance carries with it the by-product of public debt. Without suggesting that this is an alarming matter, we may assume that it is preferable when possible to accomplish compensatory action with a minimum of debt increase. It will be worth our while to lower the deflationary pressure of the average tax dollar, since this will raise the permissible level of tax yield and reduce the need for debt increase. The least pressure principle, therefore, remains valid even though the possibility of yield reduction is accepted. However, the possibility of yield reduction in the depression reduces the seriousness of our finding that there is only limited scope for lowering the deflationary pressure of the average tax dollar.

Let us now turn to the case of inflation. As a proposition in fiscal theory, it has been suggested that the tax pressure upon consumption and investment might be held to a minimum even under conditions of inflation. This will permit a higher level of tax yield and budget surplus, and hence debt retirement at a higher rate. This argument, though ingenious, is quite unrealistic. As the required level of tax rates cannot be counted upon, we shall be better off if we reverse our deflation rule and argue that, under conditions of inflation, the average tax dollar should depress private demand as heavily as possible.

If this condition is met, inflation can be checked with a lower level of tax rates. This is preferable politically and may also be preferable as a matter of economic policy. To develop this point, it will be helpful to distinguish between tax pressures on the level of private expenditures and pressures upon incentives to work and to produce, including managerial incentives. Whether pressure on investment incentives should be grouped with expenditure pressures or production pressures depends on the circumstances of the case and on the nature of the investment. The more short-lived the boom is expected to be and the more distant the output effect of the particular investment, the more clearly do pressures on investment incentives come under the heading of expenditure pressures.

Suppose now that we have a situation of heavy inflation, where the community's propensity to spend (on consumption plus investment) is well in excess of unity. In order to check inflation by taxation—and assuming the inflation pressure to be sufficiently severe—it might then be necessary to tax at an exorbitantly high rate, taking up say 50 or 75 per cent of total income. At some point the required rate of taxation will become so high as to seriously interfere with production incentives. As a result, real output will fall. This is undesirable, quite apart from the fact that it will tend to accentuate inflation. We are then confronted with a situation with which the fiscal mechanism cannot cope. The argument that tax rates might be lowered to reduce incentive pressures is not helpful, as this can only be done at the cost of raising the inflation pressure of money expenditures. A true impasse exists.

To some extent the impasse might be met by relying on taxes which will bear most heavily upon the level of expenditures while bearing least heavily upon work incentives. A tax imposed on pure economic rents or on a base unrelated to current earnings—such as a poll tax—might serve the purpose, but if a very high rate of taxation is required, such techniques are hardly feasible. Where excessive demand is a function of an excessive level of asset holdings, a capital levy may be better than a continued rate of very high income taxation. Moreover, the levy will be more equitable than an alternative impairment of the real value of money claims through price rise. In other instances, an expenditure tax or compulsory savings might help. But none of these devices will be so successful as to cancel the basic proposition that given a sufficiently high degree of inflation pressure, the tax check to inflation will break down.

All this, of course, is a matter of degree. While the problem of production pressure is potentially existent at even a low level of taxation, it does not become severe until a quite high level of rates is reached. Until then, increased rates will do more good in terms of reducing expenditure pressures than harm in terms of deterring work and production effort. Conditions at the close of 1947 are still of this kind. Current, or even somewhat higher tax rates, are hardly a deterrent to work, as far as the mass of workers is concerned. As far as pressures on investment go, the nature of the present boom appears to be such that a temporary abatement in the demand for investment goods is no less desirable than an abatement in the demand for consumer goods. Pressures on investment, in the short-run context of the present situation, are thus largely to be classified as desirable expenditure pressures. On the whole we should have been better off if postwar tax reduction had been avoided and in particular if the excess profits tax (and with it the prerequisite for a more vigorous price-wage policy) had been retained.

Before proceeding, another aspect of the possible conflict between production and expenditure pressures should be noted. In our previous illustration government expenditures were assumed not to figure as an active element in the inflation picture, but the same situation may arise as the result of a high level of public outlay. If these outlays, whether for goods and services or for transfer expenditures, are assumed to be sufficiently high (relative to productive capacity, the propensity to consume, and the level of private investment), the same dilemma will arise. Again the level of taxation required to check inflation becomes such as to check production incentives.

During the war, when we were confronted with just this problem, the solution was found in a moderate level of taxation, combined with direct price and rationing controls. The fiscal mechanism had to give way to other approaches.[13] The concern of traditional public finance writers—that public expenditures may become too high relative to national income to be sustained in an uncontrolled market economy—is thus not eliminated by the mechanism of compensatory finance. Adjustments of tax policy cannot offset the basic fact that an inordinately large fraction of total income may become unavailable as a market reward for production effort.

What do these considerations suggest regarding our plans for federal tax reform? Interestingly enough, most all proposals advanced during recent years have aimed at a tax structure best suited to meet the requirements of deflation. But it now appears that we cannot be certain in assessing the future in these terms.

This leaves the tax planner somewhat in a dilemma, since the requirements for a good tax structure will be different under conditions of inflation and deflation. Both are similar in aiming at a minimum of pressure on work incentives, but are dissimilar with regard to consumption pressures and, in the short run, with regard to pressures on investment. It is hardly possible to look ahead and to predict which approach will be called for; yet the basic tax structure is rather rigid and cannot be changed frequently.

It will thus be necessary to make the best of a difficult situation. One requirement for the basic tax structure is that it should lay a foundation which will facilitate adjustment to more acute inflation or deflation situations without necessitating the introduction of new taxes or basic structural changes. The basic tax structure, accordingly, should retain a broad personal income tax base even thought it may be desirable at times to hold rates in the bottom brackets to nominal levels. Also, it should continue to include a full-fledged corporation tax and an improved system of capital gains taxation. Given such a framework, changes in emphasis between different types of revenue sources may be accomplished by selective rate adjustments within the basic revenue structure.

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[13] The vast changes in production structure required in the war economy further increased the need for direct controls.

The problems discussed in this paper have dealt with the current effectiveness of compensatory finance and tax policy in dealing with economic disturbances. Limitations of time have not permitted us to consider possible aftereffects of such policies as may result in the form of increased public debt or money supply.

While it is evident that the vast increase in debt and credit during the war years has created serious problems, especially in curtailing the maneuverability of monetary controls, this has been a wartime phenomenon. Indeed, it would have required some seventy-five years of deficit finance at the rate of the thirties to match this increase. As far as the use of compensatory finance under future conditions of inflation is concerned, it will tend to remedy rather than aggravate the situation created in the course of war finance. As far as compensatory finance in a future depression goes, it is altogether unlikely that it would result in a drastic increase in the debt to national income ratio, and it is, of course, this ratio that counts. Examination of the problem of aftereffects would not have greatly modified our previous conclusion that a vigorous use of fiscal policies is called for.[14]

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[14] For discussion of aftereffects, see my paper on "Credit Control, Interest Rates and Management of Public Debt" in *Income, Employment and Public Policy, Essays in Honor of Alvin Hansen* (N. W. Norton, 1948).

FISCAL OPERATIONS AS INSTRUMENTS OF ECONOMIC STABILIZATION

By Charles O. Hardy
Joint Congressional Committee on the Economic Report

This paper deals chiefly with the quantitative aspects of fiscal control; that is, with the use of Treasury operations to stabilize the total amount of income, as measured in money terms. Qualitative controls, designed to influence the pattern of expenditures, aim primarily at objectives other than stabilization. For example, excises which discourage a particular type of consumption or subsidies which encourage a particular type of production may be used to promote health or morals, to develop a backward region, or to give something to one group of people at the expense of another group. The effects of such selective controls on the total volume of productive activity are incidental.

I shall discuss only federal finance. State and local governments cannot operate effectively on the level of total money income, for two reasons. The first of these is patent; namely, that money income is so fluid that any expansion or contraction of expenditures engineered by local finance is diffused quickly over the whole economy. So far as the local government is concerned the effects are dissipated, just as are those of the operations of single business units. The same consideration applies to operations of the government or the central banking system of a small country. Only a very large country (or an international organization of smaller countries) can hope to stabilize its economy through either fiscal or monetary policy.

The second reason why local government finance is impotent as a tool of stabilization is that a local government, having no power to issue money and no control over the central banking system, must finance its expenditures by tax revenues or by borrowing the current savings of the community. Like a private corporation, it can increase its own expenditures only by reducing the spending capacity of someone else. The effect of its operations on the volume of bank credit, if any, is beyond the control of the local government, and subject to that of the central monetary authority.

I. *Three Types of Fiscal Control*

Surplus or Deficit. The type of fiscal control which has been most discussed in recent years is control through the net balance of expenditures and revenues—the cash surplus or deficit—which is supposed to exercise a direct influence over the volume of private purchasing power.

Tax Management. By tax management I mean changing the form and incidence of taxation, with a view to influencing the volume of private expenditure. Enthusiasts for this idea believe, or hope, that it will someday be possible to check inflation by shifting the tax structure so as to throw the burden more heavily on those incomes which would otherwise be spent most quickly. For times of depression, they suggest that another structure be provided, the incidence of which would be on incomes that are feeders of idle balances. Taxation combined with equivalent expenditure would channel these funds into the income stream with the same immediate results as the spending of newly-created money. Ideal tax management, from the standpoint of stabilization, would follow these two patterns alternately, and thus exercise a constant stabilizing influence.

So far as I can see, however, there is no way to identify such income for tax purposes. The factual basis of this whole scheme of tax management is highly speculative; I know of no attempts to carry it through in practice. The generally accepted relation between the size of individual incomes and the rate of turnover of cash has no statistical, and very little theoretical, justification. All taxes are deflationary, except perhaps those business taxes which are so high as to encourage wasteful spending and discourage resistance to wage demands and increases in the prices demanded by those who supply goods and services to industry.

An excess profits tax of 90 or 95 per cent is probably inflationary because of its stimulus to uneconomic spending, whereas the same tax with rates of 50 per cent or 25 per cent would be deflationary. Hence, I am not one of those who are distressed that the excess profits tax of World War II was taken off at the wrong time, although a sharp reduction of the rate would have been more timely than outright repeal. Its maintenance at wartime rates would probably have increased the inflationary pressures of the last two years.

My tentative conclusion, which is not based on adequate study, is that tax management is a promising field for further study from the standpoint of encouraging progress, but is not likely to contribute much to the solution of the short-run stabilization problem. In the long run, the most promising possibility is probably "incentive taxation," designed to subsidize investment, stimulating expenditure in the short run and increasing real income in the long run. So far this is the happy hunting ground of the amateur rather than the professional economist. It is of little interest in the current situation when investment needs no prodding.

Debt Management. The third type of fiscal program, debt management, includes the choice between the issuance of types of security which will be bought by banks and those which are preferred by individuals and savings institutions. It includes also the use of nonmarketable securities like the savings bonds and nonredeemable securities like the terminal leave bonds to sterilize purchasing power. During the war we tried to hold down the volume of spending by limitations on bank ownership of certain types of bonds and by drives to push bonds into the ownership of individuals. But since this purpose conflicted with the Treasury's interest in selling the bonds with a minimum of work and risk of failure, loopholes were left open. There was a large amount of surreptitious bank buying through loans to directors and officers, the bonds being transferred later to bank ownership as they became eligible.

The logical extremes of types of debt management control are, in deficit finance, the choice between the issuance of interest-bearing securities and of paper money; in surplus finance the choice between hoarding cash and depositing surplus funds in reserve-free accounts of commercial banks. In planning for a deficit it may be argued that the only purpose of interest on the public debt is to reduce its liquidity and discourage expenditures on the part of the holders; hence when deficit finance is used to stimulate private spending, the deficit should be financed by the issuance of greenbacks. It seems likely that a larger stimulus to spending would result from the same sized deficit financed by paper money than by issuing interest-bearing securities. If this is correct, there is little excuse for paying interest when the purpose is to stimulate expansion; if it is incorrect there is no need to pay interest at any time. Conversely, in surplus financing the maximum restrictive effect would be attained by keeping the surplus locked up in cash, or—what amounts to the same thing—by paying off debt at the Federal Reserve banks without any offsetting Reserve System acquisition of new assets. This brings me to my first main point, the dependence of fiscal policy on the co-operation of the banking authorities.

II. *Relations Between Fiscal Policy and Central Banking Policy*

Surplus or Deficit Financing. It is obvious that deficit spending does not increase total spending unless the deficit is financed in such a way that it does not correspondingly decrease private spending. In practice, in a flexible currency-credit system, the use of a fiscal deficit to increase total expenditures (leaving out the case of paper money) involves selling securities to banks and providing them with the reserves necessary to support an expansion of credit; that is, to carry the securities without liquidating other securities or loans. Or, securities may be sold to nonbanking organizations which have sold or will sell their old holdings to the banks. Here again an expansion of bank credit will ordinarily be necessary to facilitate the operation. Thus the effect of deficit financing and of expansionist debt management depends on support from the central bank.

Likewise the quantitative significance of a Treasury surplus depends upon the concurrent policy of the Reserve System. I have pointed out above that to collect an excess of taxes over expenditures and lock it up, or to retire securities held by the Federal Reserve banks, would be highly deflationary. This seems to be accepted by everybody. But there is no such common knowledge of the rest of the story. There is widespread acceptance of an erroneous doctrine that the anti-inflationary effect of a surplus is due to, or is accentuated by, the use of the surplus to retire securities held by the commercial banks. This idea is implicit in the *Annual Report* of the Board of Governors for 1945, and it runs through Governor Eccles' recent testimony before Congressional committees.[1] Yet it is clear that if the money drawn out of private deposits as taxes comes back to the banks in redemption of securities, excess reserves are created. At the end of the operation, the banks have the same amount of reserves they had before, while deposits, and consequently reserve requirements, have been decreased by the payment of tax checks. The banks can make new loans to the full amount of the excess of taxes over government expenditures. The contrary impression is apparently due to a facile assumption that reversing a pump will put the water back in the well. During the war, everybody became aware that inflation of the money supply resulted from the sale of securities to the banks. Why then does not deflation result from the reverse procedure—a cash surplus used to retire these securities?

What is overlooked is the vital role of central bank policy in the whole process. The financing program of the deficit years was inflationary, but not because the bonds were sold to the banks. Selling securities to banks is not of itself any more inflationary than selling them to anybody else. The crucial fact of war finance was that the banks were enabled by Federal Reserve support to buy bonds without a corresponding reduction of their existing investments and loans. This was not true of any other class of buyers. The new deposits created in lending to the government were added to the existing stock of money; the new expenditures were superimposed on the existing flow of expenditures. The expansion of money flow could parallel the expansion of production so long as the expansion of the war effort consisted primarily of the aborption of idle resources and secondarily of the conversion to war purposes of resources that had been producing heavy capital goods whose product would have been remote in time anyway. Price inflation followed when this was no longer possible.

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[1] See *The Economic Report of the President* (January, 1948), p. 30; *Annual Report* of the Board of Governors of the Federal Reserve System, 1945, pp. 3, 14; anti-inflation program as recommended in the President's Message of November 17, 1947; *Hearings* before the Joint Committee on the Economic Report, 80th Cong., 1st sess., testimony of Marriner S. Eccles, pp. 137, 164.

There are many other passages in Federal Reserve publications which state correctly the relation between budget surplus, debt retirement, and bank contraction. See *Federal Reserve Bulletin,* May, 1946, pp. 461, 464, 466; October, 1946, pp. 1098-1099; May, 1947, p. 775; November, 1947, p. 1342.

In the passages cited from the *Annual Report of 1945,* the apparent error may be due to the inexplicit use of the term "bank holdings," where Federal Reserve holdings are meant.

But the repayment of bank-held securities does not automatically contract the scale of banking activities in the way that the acquisition of those securities expanded the scale of banking activities. The reserves that were created to make possible the expansion are still held by the banks. Unless the Federal Reserve System mops up the reserves that are set free by the cancellation of deposits through taxation, the loss of bond investments by the banks makes possible an expansion of loans to business, or the purchase of bonds formerly owned by business, either of which restores to active use the funds that were taken away in taxes. It is as though the taxpayers borrowed from the banks new money to pay their taxes in the first place.

In short, there is no direct deflationary effect from using a government surplus to repay short-term securities held by banks. There is only an opportunity for the Federal Reserve to mop up some bank reserves without forcing the banks to call loans or sell securities in the open market. There is, however, a by-product in the reduction of equities and increase of debt to the banking system.

Debt Management and Central Bank Policy. Debt management is also closely tied into central banking policy. The main point of debt management from the standpoint of prosperity and depression is to make it an indirect way of expanding and contracting the amount of purchasing power in the hands of the public. If long-term bonds are refunded into low-yield, short-term certificates and the latter are sold to the banks, the former holders of the bonds get bank deposits and are put in a position to make new investments. The possibility of doing this depends on the presence of excess reserves in the banking system; and the creation and destruction of excess reserves is the keystone of central banking. In essence, debt management is thus a more roundabout way of doing what we used to call open-market operations.

Tax Management and Central Bank Policy. I said above that the most effective way of budgeting for expansion through a deficit would be to finance the entire deficit by expanding the money supply. There would be something to be said for a "no tax" policy if deflationary forces were so strong that the operation would not overdo the desired correction and give us a roaring inflation. But there is a prejudice against increasing the national debt, and there is sentiment in favor of taxing the rich in order to melt them down. Hence, instead of concluding merely that we should have lower taxes, or none, in time of deflation, the theorist plans to adapt the *kinds* of taxes levied to the alternating requirements of prosperity and depression eras. If the tendency is toward depression, use taxes which will fall chiefly on large incomes; if it is toward inflation, lay aside the whole theory since it suggests the use of regressive taxes. During the depression it was very fortunate for the flowering of the fiscal theory of stabilization that the kinds of taxes which had the greatest equalitarian appeal were precisely the ones that seemed to fit in with a stabilization program. This remained true so long as the problem was one of stabilizing against deflation.

Some attention should perhaps be given to the contention, rather common among political leaders, that all taxes paid by business are inflationary because they enter into the cost of production. Of course, what some of our political leaders mean when they say that a tax is inflationary is that the combined effect of levying the tax and spending the proceeds is inflationary. This may or may not be true, according to the incidence of the tax. It is to be noted, however, that when there is slack in the banking system, taxes may be financed by bank expansion just as well as any other business expenditure. When this occurs the tax viewed by itself is quantitatively neutral, but the tax and corresponding expenditure taken together are inflationary.

III. *Relative Efficacy of Fiscal Controls and Credit Controls*

During the twenties economists developed an almost superstitious reverence for the supposed power of central banks to stabilize business through rediscount rates and open-market operations. During the thirties there was a reaction against this view; some went to the other extreme and denied that central banking powers are strong enough to be of any value. Fiscal controls commanded the same sort of unquestioning allegiance that central bank controls had enjoyed in the twenties.

On this question I have only four things to say, none of which requires long discussion:

1. Of the two sets of apparatus the central banking scheme seems to me more powerful than the fiscal one, though neither method alone is as effective as both used together, especially for expansion. Fiscal policy for expansion will not work without active central banking support; though for a contraction it will work if the central bank merely keeps total bank reserves stable. Central banking policy will have some effect in either direction if fiscal policy is merely neutral. It will bring about contraction very effectively, but for expansion purposes it is not much more than permissive. You can only slacken a string; it is of no use to push hard on it. If they should work against one another, no general statement can be made as to the result.

2. There is very little historical material with which to check the-

oretical findings as to the efficacy of either method. The case of the United States during the thirties is generally supposed to support the view that central banking powers are inadequate and fiscal powers adequate, but no conclusions can safely be drawn from the experience of a period in which both methods are being used for the same purpose at the same time. The relative mildness of the depression of the thirties in England, where there was substantially no deficit financing, points to the opposite conclusion.

3. Because the theory of fiscal management was developed in the thirties under the influence of the depression, it has been worked out chiefly as a technique of preventing or checking deflation. On the other hand, the theory of central banking policy was developed at a time when most of the interest in stabilization related to the prevention of inflation.

4. Although the theory of control of the flow of income through fiscal management was developed as a sort of by-product of the development of Keynesian economics, it is really no more Keynesian in its assumptions than is the theory of management through central banking operations. The Keynesian system intensified the demand for an effective instrument of control over the level of activity, because it treated as permanent integral characteristics of the economy certain maladjustments which in non-Keynesian economics are treated as aberrations from normal human conduct. The Keynes of 1924 and of 1930 was a devotee of the doctrine of control through rediscount rates and open-market operations. The Keynes of 1936 was an advocate of fiscal controls because, along with many non-Keynesians, he had decided that central banking controls used alone were too weak—a conclusion foreshadowed by two or three sentences in the *Treatise on Money*.[2]

IV. *Open-Market Operations of the Trust Funds*

The newest form of fiscal control is the use of the securities in the government trust funds, chiefly the social security reserve funds, in open-market operations. This was suggested in 1946 by Roland Robinson.[3] An interesting account of its use has recently been published.[4] This relates to sales of long-term securities held by the trust funds, to prevent declines in long-term interest rates, the securities being replaced in the trust funds by special issues and the money used by the Treasury to retire bank-held debt.

It is clear that there has been close co-operation between the Federal Reserve System and the Treasury in these operations. Nevertheless, it is risky to have two kinds of open-market operations controlled by different agencies. The only permanent guarantee that they will not be used at cross-purposes would be the permanent subordination of one agency to the other. This brings me to my final point, which relates to the location of responsibility for the monetary and credit policy of the national government.

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[2] Vol. II, 1930, p. 170.

[3] *Postwar Economic Studies* of the Federal Reserve System, No. 3, p. 78.

[4] *Federal Reserve Bulletin,* November, 1947, p. 1349.

V. *Independence of Monetary Authority*

Our monetary system is organized on the theory that the monetary authority should be an independent agency operating in the public interest to provide the amount of money necessary to meet the needs of industry and commerce.

The stabilization functions of the Federal Reserve System were being performed in a crude way by the Treasury before the Reserve System was established. Treasury balances were shifted back and forth between sub-Treasury hoards and commercial bank balances as the fluctuating needs of the banks were indicated by seasonal ease or strain and by occasional panics. The Federal Reserve Act originally provided that the Secretary of the Treasury and the Comptroller of the Currency should be members of the Federal Reserve Board, a relationship which was terminated in 1935. Since then, as before then, however, the Treasury has at times practically dictated the credit policies of the Reserve System—as has been true also in other countries. The control was greatest in 1917-19 and in 1941-46, but it would probably have been just as effective in the later years of the depression of the thirties if the objectives of the two agencies had not coincided.

In my judgment the reasons which led to entrusting the stabilization policy to a body independent of the Treasury were cogent when the System was established, and are still just as cogent. Treasuries always favor cheap money; especially, of course, when they are borrowing more than they are paying off. The functions of stabilizing the economy and minimizing the interest burden on the Treasury are separate and distinct. They did not conflict in the middle thirties because the banking policy was to provide cheap money for business cycle reasons, while the Treasury was running a deficit, necessitating Treasury borrowing in the open market. But Federal Reserve banking policy and Treasury policy conflict whenever the central bank has the problem of controlling or terminating too rapid an expansion of credit.

The current boom has revived the conflict and stimulated ingenious plans to circumvent the difficulty without a conflict of authorities. The issue of location of authority is being postponed, and the economic issue is being fogged, by Reserve System's acceptance of the claim that the fiscal interests of the Treasury and the economic interest of the country in the monetary system really coincide. There has been widespread acceptance of the doctrine that high interest rates are of no value in checking a boom—although the same authorities seem to say that cheap money is essential to the maintenance of full employment. The real point is not the effect of the higher rates, but the by-product effect on rates of the things that would have to be done to check inflation; or stating it the other way round, the effect on inflation of the things that have to be done to keep interest rates from rising. Now that this issue is forced to the front by the sweep of inflation, we are being told that stability of the bond market is itself essential to the prevention of further inflation. It is feared that a rise in long-term rates on government bonds would precipitate a wholesale cashing of savings bonds and dumping of marketable bonds. This tendency to inverse elasticity —holders selling on declines and buying on advances—does appear occasionally in speculative markets in periods of rapid price change, but has never been so chronic as to discredit the general practice of price-cutting on the part of sellers who want to move their goods quickly. Keynes thought that inverse elasticity was of considerable importance with respect to *wages,* but he always treated a rise of *interest rates* as a stimulant to buying of bonds, and vice versa.

The scheme recently recommended by the Reserve System, involving isolation of most of the short-term government debt from the rest of the money market, offers a partial solution, though it is not clear that it would protect the long-term money market from the competition of corporate securities and commercial loans. I believe that such a special reserve of short-term securities would be worth adding to the monetary structure, especially if the Treasury would agree, in return for this much protection of its short-term market, to withdraw its objections to stabilization of the total volume of money by Federal Reserve open-market operations.

We are relying on very slender evidence in making a sacred white ox of the parity of government bonds. We shall never know whether a 99⅞ quotation for long-term bonds would wreck the country until we try it, but we know that no calamitous results followed the decline of government bonds below 85 in the early twenties. The risks attached to a lowering of the peg under the bond market must be weighed against the risks of continuing to blow up the bank credit structure in the process of supporting that market. The basic fact of inflation is that the supply of money is outrunning the demand for it. While our tax policy is anti-inflationary, Reserve System policy has not been such to make the tax policy effective. And the present debt management policy is basically inflationary; so long as we must keep the bond market rigidly pegged we cannot grapple seriously with the control of inflation at its source.

DISCUSSION

WALTER S. SALANT: Mr. Musgrave's finding that changes in the distribution of a given total tax burden will not greatly alter the amount of consumption out of a given income is an important one. It rests on three points: the bulk of taxable income and therefore of tax payments is found in the middle and lower income groups so that only a limited amount of tax burden can be transferred from one income group to another; differences in the *marginal* propensities to consume of different income groups are not so great as is frequently supposed (and it is the difference in marginal, not average, propensities that counts); and the present revenue structure is already fairly progressive. We must interpret the finding carefully, however. First, the statement that the difference between consumption under two different tax structures with equal yields will be only, say, 3 billion dollars refers to the change in consumption at a given level of income, not to the change in total consumption. For an increase of the consumption-income function, like an increase of investment, expands income so that, in addition to the rise of consumption out of a given income, there is a further rise of consumption coming from the resulting increase of income. Thus, with a marginal propensity to consume of 60 per cent (i.e., a multiplier of 2.5) an increase in the consumption function of 3 billion dollars will increase both income and consumption by 7.5 billions. Second, insofar as the present high progressiveness of the tax system is the factor limiting further expansion of consumption, the more limited is the possibility of increasing the consumption function by more progressiveness, the greater is the scope for decreasing it by reducing progressiveness. Unless this point is clearly understood Mr. Musgrave's finding may be misinterpreted to mean that the degree of progressiveness has little effect on consumption and income and that a reduction in progressiveness will therefore not be anti-inflationary or that it will not be harmful in a period of underemployment. In short, insofar as Mr. Musgrave's point rests on the present high progressiveness of the tax structure, its significance is not that progressiveness of the tax structure yields no significant consumption increases but that most of these increases have already been obtained. (Incidentally, the force of this point is reduced to the extent that the recent rise of prices has reduced the progressiveness of the tax structure in certain income ranges.) These comments are merely elaborations of Mr. Musgrave's statements. I fully agree with his major argument, also made by Mr. Hardy, that alterations in the structure of taxation are not a suitable anticyclical compensatory device.

I doubt if the possible conflict in an inflationary situation between the requirements of stabilization and considerations of incentive, which Mr. Musgrave mentioned, are likely to be so serious in a cyclical inflation that they could not be resolved by the use of compulsory saving. This and other fiscal devices could probably prevent the tax check to inflation from breaking down.

In discussing the effectiveness of fiscal policy Mr. Musgrave makes virtually no reference to banking and credit policy. He is not concerned with how a deficit is financed or a surplus disposed of. Mr. Hardy, on the other hand, regards this as *the* important determinant of the effect of fiscal policy. As a matter of practical policy in an unambiguously inflationary or deflationary situation the relative importance of fiscal and credit policy may not be important. The use of both instruments together would have a greater effect than the use of either alone. I believe both speakers agree with this. Nevertheless, Mr. Hardy's whole position regarding the relation between fiscal policy and credit policy raises a basic question of theory which may not appear on the surface. Its basic assumption seems to differ with most modern monetary theory. The reasons Mr. Hardy gives for believing that fiscal policy must be backed up by central bank policy will make clear what I have in mind. I paraphrase him as follows: Unless a deficit is financed by the sale of securities to banks and the banks are also provided with the additional reserves, the buyers of government securities will liquidate other earning assets and this will reduce private spending. Likewise when government debt is repaid, whether it is held by the banks or the nonbanking public, the funds made available will be reinvested in some other way and private expenditure will increase, thus offsetting the surplus, unless reserves are reduced. Similarly, in stating why he thinks local government finance is impotent as a tool of stabilization, Mr. Hardy says that local governments, having no power to issue money either directly or through the central banking system, can increase expenditures "only by reducing the spending capacity of someone else." Again, he says if expenditures are not financed by issuance of new money, either from the central bank or the printing press, they must be financed either by taxes or by borrowing the *current* saving of the community. By these and other statements Mr. Hardy seems to imply, although he does not explicitly state, that "spending capacity" is equivalent to actual spending; that neither banks nor the public can be induced to buy securities for cash that they would otherwise have held idle; and that the purchase or liquidation of a new government security by the public or commercial banks is always at the expense of the purchase or liquidation of a new private security unless bank reserves are increased or decreased.

Underlying this proposition there is, I believe, the assumption that people react in the same way to all money they receive or that is taken from them, whether it is income or cash exchanged for another capital asset or as a debt. Mr. Hardy's paper does not make this distinction between income and liquid capital, which I believe is an important one. This is the fundamental difference between the pure theory of fiscal policy and that of banking policy. The pure theory of fiscal policy is that changes of income can be relied upon to produce changes of total expenditure in the same direction with or without changes in the money supply. The theory of credit policy is that changes in the stock of money are sufficient to do so. The one is concerned with the marginal propensities to spend for investment and consumption, which are ratios between changes in two flows. The other is concerned with the relation between a flow and a stock. Whether Mr. Hardy believes changes in the stock of money are sufficient to change total expenditures is not clear from his paper, but he clearly believes they are necessary.

I believe close examination would show that, for fiscal policy to be completely ineffective in expanding or contracting income without the aid of credit policy, the demand for money to hold must be absolutely inelastic to interest rates. If this elasticity is less than zero, fiscal policy alone can have some effect. And given some elasticity, the effect will be greater the less are the (negative) elasticities of investment and consumption to interest rates and the higher are the marginal propensities to consume and invest. It is a virtue of Mr. Hardy's paper that, when carefully considered, it forces us to recognize how little econometric analysis there has been of the important relation between the demand for money and interest rates, despite the abundance and good quality of financial data, and how little has been done to test empirically the fundamental propositions of monetary theory. One well-known fact, however, shows that fiscal policy alone *can* have some effect. That is the fact that banks have held excess reserves in the past and therefore have been able to finance a government deficit without either getting new reserves or lending less to anyone else. And if that occurred the reverse process could also occur: debt could be paid off and the reserves thus released might be held as excess. Thus the fact that loss of government securities by the banks because of debt retirement makes an expansion of loans *possible* does not of itself restore surplus tax funds to active use. There must be a borrower as well as a lender. I am confident that statistical analysis would also show that the willingness of the nonbanking public to hold money is affected by changes in interest rates and thus indirectly by changes in the supply of money without changes in income.

My difficulty in telling whether Mr. Hardy believes credit policy is a sufficient as well as a necessary weapon in expanding and contracting total expenditure arises from the fact that in one place he assumes the banks can and will always relend funds released by a government surplus, yet later he says banking policy is inadequate to secure expansion ("you can only slacken a string, you cannot push on it"), and that neither fiscal nor credit policy alone is as effective as both used together. The resolution of this apparent conflict probably lies in an unstated assumption that government cash surpluses occur only at a time when there are willing private borrowers. Then—but only then—the banks would never have difficulty in relending the funds released by surpluses and surpluses would never be deflationary.

Neither Mr. Musgrave nor Mr. Hardy touched on what seems to me the biggest practical difficulty of policy: How do you recognize what situation you are in at any given moment? And how do you gauge the strength and durability of the factors making for movement in either direction? It is the uncertainty on these points that is likely to inhibit strong efforts to use both fiscal and banking policy together. The fear is likely to exist in any typical cyclical situation that action will be *too* effective. Only in the early stages of a war is there no current doubt as to either the direction of a movement for more than, say, six months ahead or its underlying strength. The present situation, when most people fear inflation but admit at least the possibility of reversal after six months, is the typical one. But perhaps this will be treated in a subsequent session.

WALTER E. SPAHR: A study of the preliminary abstract of Dr. Hardy's paper would seem to justify the conclusion that he has brought to the front in a logical manner the principal issues involved and the major items that call for consideration if the interests of science are to be served. It would seem that if his outline were followed and the evidence bearing upon the items mentioned were examined in accordance with the requisites of scientific procedures, as Dr. Hardy appears to do, we should obtain reliable answers to our queries regarding "fiscal policy in prosperity and depression."

Although in the latter part of his paper Professor Musgrave touches upon central bank policy and some of the other items mentioned in Dr. Hardy's outline, his emphasis and methodology differ from those of Dr. Hardy.

Professor Musgrave begins by saying that "after fifteen years of debate, the principle of compensatory finance is well established." That contention raises questions as to what *the* principle of compensatory finance is, and as to what is meant by "well established."

It is my opinion that one may not with accuracy speak of *the* principle of compensatory finance and that even the common arguments of the advocates of compensatory fiscal policies are far from general acceptance by the most careful students of this subject. Perhaps a better way to put it is that there are hardly good grounds for general acceptance because of the scientific shortcomings of the typical contentions of these advocates.

For instance, it seems quite clear that the most reliable analyses of the evidence regarding business fluctuations, such as those studies that have come from the National Bureau of Economic Research, as an example, reveal that the causes of business fluctuations, including cycles, are many, and that such correctives as might be used with varying degrees of success or failure are likewise many. We also learn from the evidence, I think, that wars are among the most important—possibly the most important—causes of the large swings up and down in business activity and that governmental policies are often important causal factors in contributing to such swings. Still further, the evidence seems to teach us that there is no valid basis on which to rest an assumption that the employment of one or even of a few so-called "corrective" governmental policies can assure beneficial results in high degree considering the multitude of other forces that may be operating at the same time. When simple solutions to business fluctuations are recommended, one frequently, if not usually, finds that their sponsors subscribe to some simple or single-cause theory of business fluctuations or cycles without validity in the light of the evidence.

It also seems clear that a large proportion of recent and current discussions of compensatory fiscal policies has as a fundamental characteristic the defect of oversimplification—if we separate the elements of the very simple notions involved from the academic verbiage in which these notions are so often embedded these days.

Still further—and as additional reasons why there are inadequate grounds in science for general acceptance by scientists of *the*, or even *a*, principle of compensatory fiscal policy—much, if not most, of the recent and current advocacy of what are alleged to be compensatory fiscal policies seems not to have grown out of a careful examination of available evidence, but appears, rather, to be the result of some internal cogitation or mental gymnastics out of which emerge theories that probably have little value insofar as the standards of science are concerned.

For example, there appears to be common, probably general, neglect, on the part of such advocates of compensatory fiscal policies, of past business recoveries when policies very different from those now widely advocated were pursued. The policies during the sharp and quick recovery period of 1921-23, which were practically the opposite of those now being urged by supporters of compensatory fiscal policies, seem generally to be passed over in silence.

The same situation appears to apply to the four months of sharp recovery from March to July, 1933, during which President Roosevelt's announced program of retrenchment in federal expenditures, including his promised cut of 25 per cent in the then current cost of the federal government, was supposedly a policy of that government.

The same is true of other business recoveries of the past in this and in other nations.

Similarly, some of the important and unhappy results of pump-priming during the years 1934-39 seem to be neglected, or ignored, or minimized. I refer, for example, to the persistent heavy unemployment, the mere trickle of capital into new enterprises, the low and generally-persistent decline in the velocity of bank deposits.

When monetary controls are linked with fiscal policies, as is sometimes the case, it is often, probably usually, insisted that business recovery has been fostered by abandonment of the gold standard and by devaluation or some other form of currency depreciation. Although these common contentions are refuted by Dr. Rufus S. Tucker in what appears to be a careful study entitled, "Business Recovery Not Brought About by Suspension of the Gold Standard," in the *Annalist* of August 21, 1936, I am not aware that Dr. Tucker's findings have ever been demonstrated to be inaccurate, and I do not find mention or evidence of any general awareness of his authoritative study in such recent and current discussions of this subject as I have seen.

Implied or inherent in much of this prevalent theorizing in a vacuum, far removed from the facts of life, by the typical advocates of compensatory fiscal policies, are greater socialization of income and, apparently, greater socialization of the agents of production. Such socialization seems to be justified by its advocates on the ground that it will provide general or greater economic security as well as general or greater economic stability. The destructive nature of socialism is largely ignored or denied—by implication or specifically.

The underconsumption-oversaving theory as to causes of business recessions is a common ingredient in the arguments for the so-called "compensatory" policies and for greater or outright socialism.

Often, if not generally, involved in these theories is the doctrine of economic maturity of the United States and the specter of chronic heavy unemployment.

In the widespread tendency to treat the currently popular fiscal-policy theories in a vacuum, one sometimes, or often, or usually, notices that the problems of war financing are pushed to one side; that the drives of, and government responses to, pressure groups appear to be nonexistent; that the bad aspects of a large government debt are ignored or held to be virtues; that heavy taxation has no important damaging effects on our economy; that money taken from the people by taxes is in some way taken out of circulation, although the facts may be otherwise; that expenditure programs such as those involving our aid to Europe can be timed to fit the schemes of compensatory fiscal policy; that the dangers and implications involved in the easy use of aggregates are ignored or not understood; that the assumption that a recession need not and should not follow a boom is treated as though it were not open to question; that the expressions "full employment" and "full utilization of resources" are glibly used as though they have accurate and useful meaning in science; that the alleged virtues of a governmentally-managed economy may be taken for granted; that the delegation by Congress of the responsibilities reposed in it by the Constitution is appropriate if the end is thought, or alleged to be, desirable; that what was done in time of war can and should be done in time of peace; and so on.

These are among the chief reasons why there seems to be no valid basis for the contention that *the,* or a, principle of compensatory finance is well established in so far as standards of science are involved.

If these observations as to the common weaknesses in the typical advocacy of a compensatory fiscal policy are accurate, the pertinent question here is the extent to which the remainder of Professor Musgrave's observations escapes these pitfalls.

It is obvious that in the latter part of his paper, Professor Musgrave at least mentions, or even discusses briefly, some of the considerations which I think are often ignored. He points out, for example, that while his discussion "has been preoccupied with the economics of fiscal policy," the "politics of fiscal policy . . . may turn out to be the crux of our problem."

If the remainder of Professor Musgrave's paper—and that includes practically all of it—were to be appraised in a manner that would serve the interests of science, it would seem necessary to analyze it paragraph by paragraph and perhaps sentence by sentence. Such a detailed procedure is precluded here. As something of a poor substitute, perhaps the observations advanced by me in connection with Professor Musgrave's first and far-reaching contention may have some value for those who may wish to weigh his paper in the light of all the pertinent evidence on which all of us are expected to rely.

WILLIAM VICKREY: To start with Mr. Musgrave's paper, there is basically little for me to disagree with. However, I would like to question the statement that the leverage of government expenditures on national income is greater than the leverage of taxation. This may be true in general of those adjustments that are most likely to be made in practice, but it should be possible to select or devise taxes which will have greater leverage than equal changes in government expenditure. For example, the leverage of an excise tax may be substantially increased if there is a general expectation that since the tax was imposed as a check to inflation, it is to be temporary, so that purchases made now, particularly of durable goods, may have to compete later on with purchases made after the tax is repealed. Drastic spendings taxes also may have a greater leverage than existing taxes, in proportion to the revenue involved.

On another point, possibly it is a bit captious to suggest that no solution has been yet given to the $64 question of fiscal policy: what to do if price inflation and unemployment threaten simultaneously? To use Hart's picturesque metaphor, when prices start to go down, this may be considered to blow a whistle, indicating that we must open the valves supplying more purchasing power. Similarly, when unemployment develops, this rings a bell telling us likewise to turn on some purchasing power faucets (or to turn off some of the drains on purchasing power). On the other hand, when prices start to rise, this blows a siren and we must turn off the purchasing power faucets and open some of the drains. But there is nothing inherently impossible about the unemployment bell ringing and the inflation siren sounding simultaneously, and then what do we do? Fundamentally we have only one general line of controls to govern two variables—prices and employment. So far fiscal policy appears to have assumed that general inflation and general unemployment are incompatible. It remains to be seen whether this optimism is justified. In the meantime it would be well to be prepared for the more unfavorable eventuality if possible. Unfortunately, there seems to be no obvious and simple way to differentiate general fiscal controls between those acting primarily on employment and those acting primarily on prices.

On a third matter, I rather feel that Musgrave is overly pessimistic with respect to the prospects of built-in flexibility of yield in the tax structure. Some reforms, particularly a properly devised averaging scheme, or carry back of losses, would greatly increase the sensitivity of the income tax to cyclical fluctuations. Moreover, I still think that there is room for further increase in the over-all progressivity of the tax structure without necessarily impairing incentives for investment and thus for reducing the pressure of the average tax dollar on outlays for investment and consumption combined. A progressive spendings tax could increase the progressivity of the tax burden without interfering in any direct way with the process of investment. And a spendings tax, unlike the income tax, can, without becoming confiscatory and abolishing incentives, become heavy enough to require those living at luxury levels to draw upon their capital to do so. On the other hand, it must of course be admitted that a spendings tax might have effects similar to those of a comparably increased income tax on reducing the substitution of increased leisure for paid work in order to reduce taxable money income or spendings.

Another unexplored field is the annual low-rate tax based on net worth. This is sometimes termed a "capital levy," although this term more commonly connotes a heavier, once-for-all tax. For example, we could reduce the top income tax rates to say a 40 or 50 per cent maximum and restore the progression by adding an annual low-rate tax on net worth, graduated from say 1 per cent on moderately large fortunes (of over say $100,000) to 3 per cent or 6 per cent on the largest fortunes; in this way the present over-all degree of progression can be maintained, or even substantially increased, while at the same time the deleterious effect of the tax structure on incentives to earn income would be greatly diminished.

Yet even if it were possible to revise the tax system freely with the sole purpose of promoting built-in flexibility, it is apparent that this would still leave much to be desired in the control of general economic fluctuations, so that much of Musgrave's conclusions remain valid.

As to whether the excess profits tax should have been repealed when it was, opinions may differ. In any case, our experience on this occasion should remind us that fiscal policy sometimes has effects that are not generally foreseen, and one should be wary of overconfidence in making predictions. For example, although the repeal of the excess profits tax proved premature from the point of view of over-all fiscal policy, the actual timing of the repeal happened to be just right to induce a large amount of labor hoarding during the reconversion period. This fortunate timing may thus have played a prominent part in preventing the reconversion recession that was everywhere so confidently predicted. Yet few of those who advocated the repeal of this tax at that particular time did so for any such reason. We would still be rash to proceed on the assumption that we will always know exactly what we are doing.

To turn now to Mr. Hardy's paper, I must in advance apologize for perhaps doing less than full justice to his position, for I prepared most of these remarks on the basis of a rough outline.

Here there is more disagreement. If I understand Mr. Hardy correctly, he considers the balance between holdings of liquid as against interest-bearing assets to be the essential part of the problem, and the balance between saving as against consumption to be of secondary, if not of altogether minor, importance. But to imply that deficit spending owes its effectiveness entirely to accompanying currency and credit expansion is, I think, misleading. This is seen most clearly if we consider a situation where the supply of currency is inelastic, as in a country on a 100 per cent reserve basis or in one where the only money is specie. Here, as Hardy himself intimates, budgetary policy will have its effect in spite of the fact that the supply of money may not be subject to variation.

Indeed, even when there is a partial reserve banking system providing a more or less elastic supply of deposits and credit, unless monetary expansion results in, or at least is accompanied by a lowering of interest rates or other substantial easing of the terms on which funds may be borrowed, the effects on outlays and employment are likely to be slight. Whether an individual has $1,000 in a checking account or a $1,000 bond will make little difference to the amount he can wisely spend on current consumption if he wishes to make a given provision for the future; indeed the relation may well be inverse. And unless there is a change in the terms upon which capital can be obtained, there is no reason to expect any substantial increase in purchases of capital goods. Unless the interest rate goes down we can put out our string, but there is nothing at the other end that will exert a pull. And when there is no room for the interest rate to decline further, monetary policy loses its effectiveness.

There is, I believe, a fundamental difference between monetary, banking, or open-market policy on the one hand, and budgetary policy on the other. To be sure, monetary policy can, generally, be used to check booms *if* one is willing to go far enough in selling bonds on the open market and canceling the money so secured and in raising the rediscount rate and increasing reserve requirements, thus driving interest rates up and bond prices down. In practice, however, the resulting financial disturbances may be so serious as to prevent such policies being carried through to the needed degree. On the depression side of the cycle, monetary policy can be effective only when there is a substantial margin between current interest rates and minimum rates in which to operate; in modern times with relatively plentiful capital and low real yields on new investment this condition can only occur with a long-run rising price trend. Budgetary policy, on the other hand, can be made effective both on the up and down sides, regardless of the current rate of interest, regardless, within limits, of current expectations as to the trend of prices, and even, at the top of the cycle, regardless of monetary and banking policy: even an easy money policy carried to the point of making the interest rate zero can be overridden by sufficiently heavy taxation.

Even where monetary and budgetary policy can each be effective in preserving full employment, the concrete results of the procedures differ materially, wholly aside from any difference in nominal relationships. Antideflationary monetary policy, where it can be made effective, results in a large private investment and a low real rate of return, compared to a smaller volume of private investment and a higher real rate of return when deflation is checked by budgetary policy. If the antideflationary budgetary policy is carried out by increased expenditure there is more real government expenditure, either on current account or on investment account, while if it is carried out by decreased taxation the chief effect is increased individual expenditure.

Ideally, one would like to determine the volume of government expenditure, both on current account and on capital account, in accordance with an appraisal of the productivity of the public expenditures compared with that of expenditures in the private sector. One would also like to determine the degree to which government outlays are financed by taxes by a deliberate policy decision as to how much of a total capital heritage should be accumulated for future generations in the form of public assets in excess of the public debt. With budgetary policy thus determined, it would fall to monetary policy to handle the stabilization of the economy. Unfortunately, it appears that monetary controls alone will be insufficient unless our economy is subjected to some drastic overhauling in the direction of establishing a long-term rising trend of prices and high money interest rates as a permanent norm.

If, in times of depression, monetary policy alone may be insufficient, in times of inflation, such as the present, control by monetary policy alone may be an impossibly delicate operation, owing to the likelihood that application of such controls may touch off explosively unstable reactions in either direction. For example, action sufficient to make borrowing more difficult will enable lenders to obtain higher rates of interest, which higher rates may activate balances now idle and touch off a velocity spiral. On the other hand, action sufficient to indicate that prices are no longer to be allowed to rise may lead to expectations of price readjustments, postponement of buying, and the onset of a recession that no amount of monetary manipulation could check once it was started. The line between these two may be slim indeed.

Steering thus between Scylla and Charybdis may be easier if budgetary policy is used as the oar, even though this oar can be moved only slowly.

In brief, to consider budgetary policy and monetary policy as merely alternative means of accomplishing the same thing is hardly intelligent. Only by keeping the two clearly separate in our mind will it be possible to work out methods of stabilization that do not need an impossible degree of skill to operate. And we need a system of control that even an elephant could run!

HAROLD M. GROVES: My main critical reactions to Professor Musgrave's paper, with which I am in general agreement, is that he gives too little weight to psychological and political factors and has perhaps too much confidence in the efficacy of compensatory finance. Psychological factors may be of little importance in our present postwar situation, but they surely cannot be disregarded in considering time-honored business cycles. Psychological considerations might well be the determining factor in the choice among different forms of deficit expenditure, and they enter into the choice between tax reduction and an increase in public outlay. At times, as in 1929, they create a problem of overinvestment (capital formation) with which Professor Musgrave has not attempted to deal. The political factor may prove so strong and so perverse that tax institutions had best be selected along time-honored lines. The economic system is not like a couple of quart jars into which one pours economic substances until the two show equal levels and then all is well.

Professor Musgrave observes that "after fifteen years of debate, the principle of fiscal policy is well established." Few if any will deny the essential logic of its propositions. This seems to err on the sanguine side. Perhaps the proponents of compensatory finance are agreed on essentials. And most others might agree that full employment is desirable and that it calls for a balanced economy. But there is little agreement on the cause-and-effect relationship among the factors and even less on specific prescriptions for maintaining or attaining a balance. Some would still rely mainly on monetary controls and others on fiscal policy. Some argue that profits are now so high as to make oversaving inevitable; others contend that saving is insufficient to provide equity capital for needed industrial equipment; and so on. Surely there is little enough in this whole area that could be labeled "accepted doctrine."

Professor Musgrave refers to the "unhappy conflict between the least pressure [taxation] principle as applied to consumption and the least pressure principle as applied to investment." One is impressed here again by the uncertainties, disagreements, and lack of empirical evidence in this area. Our present tax system is hardly one to encourage investment what with its double taxation of equity earnings and its inadequate allowance for obsolescence, losses, and irregular income. Yet where is the inductive evidence that needed expansion and replacement are being inhibited for want of equity capital? Moreover, what of the danger of overinvestment? Most people would probably agree that in 1929 our plant was overexpanded in relation to prospective demand. Perhaps a monopoly capitalism usually needs prodding and coaxing to expand as fast as it should. But apparently it can overreach itself. The literature of compensatory finance has very little to say about the phenomenon of overinvestment.

Returning to taxation one observes that some of the canons of "old-fashioned" public finance would sanction a reduced load on distributed as compared with undistributed profits and a tighter application of the tax laws to capital gains. Professor Musgrave's paper is not very explicit on these measures but some compensatory-finance proponents oppose them. If all Professor Musgrave wants is to preserve the corporate tax *in form* this is quite compatible with elimination of double taxation of equity earnings. The so-called "British system" accomplishes this objective very neatly. Personally, I usually find myself skeptical about compensatory finance when it departs from elemental principles of fairness and neutrality in the levy of taxes. Perhaps an equitable tax system in and of itself is not to be underrated as a stimulus to economic stability or at any rate to economic progress in the long run. Or one may say that where there is so much disagreement and uncertainty one could do worse than to recommend a fair tax system. Old-fashioned public finance may not be as ripe for discard as some would have us believe.

Not "to kill the goose that lays the golden egg" is a time-honored canon of taxation extending back at least as far as Adam Smith. Early writers applied this canon most often to protect saving, regarded as the limiting factor in economic progress. In the light of recent experience we may wish to conclude that this emphasis is antiquated. But anyway it is good sense not to load the dice of the tax system against risk-taking and equity capital. This can be defended as a matter of long-range economic progress with or without support from compensatory finance. Even extreme equalitarians should agree that given two ways to reach the same goal the one that conserves incentives is the better. Long-range economic progress is undoubtedly a matter of many elements. One is new business; another is technological advance; a third is improvement in business administration; and a fourth is adequate equity capital. The significance of each of these in the increment which we add or hope to add to our national income is far from clear. But we can hardly doubt that there is some elasticity in the supply of these elements; that is, that they are capable of suppression. The tax system must take account of this.

I agree with Professor Musgrave's emphasis upon losses as a highly strategic factor in the calculus of incentives. Quite aside from any considerations of compensatory finance, society is demanding and will demand less inequalities in our distribution of national product. It is to our credit that we are becoming more and more sensitive about the range in living standards and the concentration of economic power. How much inequalities can be reduced without slowing economic progress is of course a matter of much dispute. Obviously the equalizing process can be carried much further if losses are recognized in the income tax system. The idea of giving some concession to losses that cannot be set against positive items even with an adequate carry-over, has merit and is worthy of further consideration.

Professor Musgrave states that it is the quantitative aspects of expenditures and taxation that matter most; qualitative considerations are quite secondary.

This proposition seems to need qualification at least as to expenditures. Psychology plays an extremely important role in business cycle fluctuations. Deficit expenditures on re-creative public works might be "sold" to the businessman as modified application of investment principles with which he is familiar. Public outlays that claim no self-liquidating character, on the other hand, might prove the occasion for more "jitters" and defeatism. One of the soundest reasons for enlarging the sphere of public enterprise in the public utility and natural resource area is that it would afford the public a wider field for compensatory investment.

As for built-in flexibility, administrative or legislative manipulation of tax rates, and deficit spending as alternative devices of compensatory finance, I have no large measure of confidence in any of them. Elemental common sense supports the proposition that taxes should not be increased during a depression and reduced during a boom. Humanitarian regard for the unemployed supports spending in excess of means during a depression. Rational adaptation to the facts of fluctuating national income describes cyclical budgeting. But as a practical matter both built-in flexibility and manipulation of tax rates suffer from grave and probably prohibitive political limitations. What tax rates are to be kept stable and from where does manipulation start? Should compensatory manipulation follow or anticipate economic changes? If the latter, does anyone suppose that the art of calling the turn on cycle fluctuations has reached the point where it can carry this responsibility? Will the parties on the left and the right decide their attitudes on the sales tax and the income tax primarily on compensatory considerations? Or will they on the contrary decide them according to long-standing predilections and use compensatory-finance rationalizations for support? Certainly legislative manipulation of tax rates has to achieve the goal of stability before it can go on to more ambitious objectives. As for depression deficit spending, I am for it, but how much, if any, it can contribute to end a depression I am not prepared to say with any confidence.

Dr. Hardy's thesis that fiscal policy depends upon credit policy for its successful application impresses this commentator as interesting but only partly true. If bank deposits are reduced by retirement of government debt held by banks, the result, to be sure, will be an increase in the lending power of banks. But this will be turned into expanded credit only if the availability of credit rather than the demand for worthy loans were the limiting factor; it would have no effect, of course, if banks were operating with excess reserves both before and after the act. Moreover, worthy new loans that improve the output of business need provide no inflationary offset to the government's debt retirement. I am aware of the fact that this proposition is thought to be invalid in a period of full employment of resources but I am skeptical of the conclusion that we ever get such full employment as to destroy the offsetting effect entirely. In the depression phase of the cycle when by general agreement the availability of credit is a small factor in the amount sought, the dependence of the two types of control would be even less.

I agree with Dr. Hardy's statement that the efficacy of fiscal policy in taming the business cycle has not been demonstrated and with Professor Musgrave's proposition that compensatory finance does not include all of public policy looking toward a stable economy. In the boom phase, for instance, compensatory finance can do little to forestall overconfidence, overspeculation, overexpansion, and maladjustment in specific prices; and while credit policy might be effective on some of these fronts, it cannot reach all of them. Fortunately, there is little now of the overoptimism that characterized our situation in 1929. The principal present concern arises from the fact that our economy will necessarily have to adjust itself to reduced demands upon it once a war-torn world returns to something like normal. The ideal precaution would be the kind of over-all rationing that an over-all spendings tax or forced saving could supply. If we must have tax reduction now, one would hope to see it combined with some measure postponing consumption. But to induce people to postpone an immediate advantage for the sake of a stable future is, as Professor Musgrave suggests, a first-rate political and educational problem. If another war comes along, we should be sophisticated enough to realize that wars do not end economically until long after the shooting.

PROBLEMS OF TIMING AND ADMINISTERING FISCAL POLICY IN PROSPERITY AND DEPRESSION

THE PROBLEM OF TIMING FISCAL POLICY

By Everett E. Hagen
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The timing of federal fiscal policy—and of nonfiscal employment policies—is a topic well worth exploring. In their preoccupation with analyzing the effects of various fiscal policies, most economists during the last fifteen years—and this includes me for I do not by any means wish to claim any superiority in this matter—have not given much consideration to the problem of assuring that the policies which produce certain effects will be put into operation at the time when those effects are wanted. But unless we are going first to enter deep into a serious depression (if and when one occurs), and then to plan measures to get out of it—unless we are resigned to this, we need to plan in advance, not only the measures to be used, but also how to get them into operation promptly when they become needed. Or, consider the contrary situation. We have now experienced eighteen months of inflation since the termination of price controls. After a lull last spring, a second upsurge of prices occurred. If its violence was forecast by any of us present, he kept his prescience modestly concealed. To have prevented that second upsurge, it would have been necessary not only to have had countermeasures ready, but also to have had methods of introducing them promptly when needed.

I shall use the term employment policies. I use that term, however, to include repressive or contractionary measures as well as stimulating or expansionary ones; my comments are directed, that is, at the prevention of inflation as well as of unemployment.

There are three states of mind, any of which would make one feel that discussion of the problem of timing employment policies is fruitless. One is conviction that autonomous forces which affect the level of income and employment are going to tend toward a stable secularly growing level of full prosperity, or else toward a stable depressed state. In the former case, nothing would need be done except to keep public policy neutral; in the latter, nothing except to adopt policies necessary to raise the level of aggregate demand by the requisite amount, and then maintain them.

The second state of mind is the conviction that measures can be adopted which, once installed in the economic framework, would automatically counteract economic fluctuations and preserve a desired level of economic activity. In either of these two cases, no problem of timing would arise.

Finally, there may be the conviction that no feasible deliberate action, no matter how well considered, can prevent the fluctuations which will occur. This conviction may go so far as to include the judgment that the result of interferences may be perverse, exaggerating the swings. In this case, attempting to time deliberate policies will do no good.

The discussion of timing fiscal policies therefore implies three substantive judgments to all of which I subscribe: that economic fluctuations of significant magnitude will occur, that they cannot be prevented or sufficiently mitigated by measures which can be instituted and then left to operate automatically, and that they can be prevented or mitigated by deliberate changes in policy at appropriate times.

Governmental policies to influence aggregate income and employment may be classified, according to the route by which they affect aggregate expenditures, as:

1. Fiscal—namely, government expenditures which directly create employment, or policies directly affecting the level of private incomes. This definition of fiscal policies limits them pretty completely to tax and public expenditure policies.

2. Monetary—affecting liquidity preference; that is, affecting the volume of money in the economic system, or the ease of borrowing.

3. Structural—affecting the inducement to invest or the propensity to consume; for example, by establishing greater (or less) security of income, or by altering tax liabilities which affect investment. Antitrust policy and patent policy are other examples.

Structural policies affect the level of demand and supply, but changing structural policies is a clumsy weapon for meeting fluctuations in demand. In general, these policies cannot without harm be turned on and off, and insofar as they can, neither the timing nor the magnitude of their effect can be even approximately estimated. However, they are highly important in making stabilizing forces work better. As a simple example, the provision for current collection of individual income taxes makes the progressive individual income tax a far better stabilizer, and changes in that tax far better antifluctuation measures, than would otherwise be the case.

Nor in general is the response to expansionary monetary policies in time of recession—to reduction in interest rates, or easing of credit supply—as prompt and predictable as is necessary for effective timing of employment policies. Certain specific controls—for example, installment credit controls—are exceptions. In the opposite situation, when contracting or preventing expansion of total expenditures is needed, monetary controls vigorously applied are probably highly effective; but the magnitude of their effect is highly uncertain. For these reasons, monetary policies must be used primarily as a general backstop to fiscal measures; the latter are keener instruments—or less blunt ones—for meeting promptly fluctuations in aggregate demand. My discussion of getting policies into effect at the right time will therefore deal mainly with fiscal policies.

Possible Mechanisms for Introducing Measures at the Right Time. All possible means of getting employment policies into effect at the right time may be considered as bounded by two extremes. The first—forecasting economic developments well in advance and then planning *ad hoc* the nature and timing of measures to meet the foreseen development—is not a practical method for a reason which can be briefly summarized: in the present state of the science of economic forecasting it will not work.

A forecast would be required for a period far enough in the future so that in the interim, policy could be planned, adopted, and put into effect. In the United States, with its constitutional separation of powers and the resulting duplicate and sometimes triplicate consideration of fiscal policies in first the executive and then the legislative branch, this would involve a longer view into the future than perhaps anywhere else in the world. If the President's budget recommendations were to be based on a firm economic forecast, a forecast with a very small margin of error would have to be made for a period eighteen months in advance.

The narrowness of the permissible margin of error arises from the fact that while it is *em*ployment to which the forecast must be directed, it is the volume of *un*employment which is significant for the public policy purposes being discussed here. A small percentage error in forecasting employment will mean a large one in forecasting the residual unemployment. Within an error of plus or minus 5 per cent in forecasting employment may lie the difference between a forecast of severe inflationary pressure and one of recession sufficiently severe to call for a vigorous expansionary program.

Without presenting the evidence here, it may be asserted that error in forecasting is too great to permit its use as a basis for timing changes in public policy. The attitude of the forecaster must still be like that which Byron expressed in a fragment written on the back of the manuscript of a draft of "Don Juan":

> ". . . at least the past were passed away—
> And for the future—(but I write this reeling,
> Having got drunk exceedingly today,
> So that I seem to stand upon the ceiling)
> I say—the future is a serious matter—"

"And so," Byron concluded, "For God's sake, scotch and soda water."

Forecasting as the basis for *ad hoc* policy arrangements is the one limiting case. The other is to adopt measures which remain in effect at all times without change in their provisions, which will provide automatic correctives for variations in economic activity. The use of such measures is feasible, but they cannot possibly be adequate to prevent fluctuations, or to mitigate their violence to a sufficient extent.

Examples par excellence are unemployment insurance, farm price supports, and a progressive system of taxation, which reduces the tax drain upon one's income, even as a percentage of income, when income falls, and increases it when income rises. They operate when a loss of employment and income, or a reduction in income, has taken place. They partially replace the loss of income. Since they operate only in the absence of the original level of income, they cannot possibly prevent the fall in income from occurring, or restore the original level. In fact, since they achieve only partial replacement of income, the most they can do is to lessen the secondary repercussions; that is, to reduce the value of the multiplier.

Even if devices were established which granted complete replacement of lost income, the effect would be only to prevent the multiplier from operating; that is, to limit its value to unity, not to restore the primary loss of employment and income. And this result would be obtained only at the cost of largely destroying the inducement to work.[1]

However, though automatic stabilizers cannot provide adequate correctives for fluctuations in economic activity, they are extremely valuable tools for dealing with such fluctuations. For, by augmenting income and stimulating demand on the downswing and by removing that stimulus on the upswing, they dampen the magnitude of economic fluctuations and thus reduce the size of the problem with which other measures must deal. This observation is pertinent, not merely to problems dealing with unemployment, but to the problem of meeting inflationary pressures as well. For example, except for the sharp increase in corporation and individual income tax liabilities since mid-1946, the inflationary pressures which have been in operation since that time would certainly have carried prices higher than has actually been the case. The automatic stabilizers which are now in effect could be made much more powerful. Professor Hart's paper makes suggestions for their improvement.

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[1] The concrete proposals advanced by the Committee for Economic Development in *Taxes and the Budget* (November, 1947) would limit the role of fiscal policy to automatic stabilization. This in my judgment would condemn the economy to variations in employment of intolerable magnitude, for the burden of preventing them is too great for monetary policy to bear. However, repeated warnings throughout *Taxes and the Budget* concerning the need for "extraordinary action" if "an economic crisis of great magnitude" should occur (see p. 27, for example), indicate that the authors realize—perhaps reluctantly—that the "stabilizing budget policy" they propose should be abandoned if anything more serious than minor fluctuations occurred.

If neither forecasting the appropriate time for change nor providing automatic stabilizers will work adequately, then it is necessary to devise methods of acting promptly after the fact. Promptness is essential, once the prescription is clear; otherwise the swing in conditions may gain too much momentum. Four methods of obtaining quick action may be used. These I shall call automatic timing, timing by a Congressional trigger, administrative discretion subject to Congressional veto, and complete administrative discretion.

The legislation itself may provide for a change in its structure when economic conditions change. A hypothetical example would be the provision that income tax rates in the first surtax bracket should be reduced from the present level of 19 per cent—assuming that to be accepted as the standard rate—to half that amount, effective on the first day of the second month after the *Monthly Report on the Labor Force* has recorded unemployment of four million for the third successive month, or unemployment of six million in any one month.[2] On the up side, the standard rate should be restored, not as soon as unemployment fell below say two and a half million, but only when, in addition, consumer prices had risen by say 3 per cent within any six-months' period. The suggestion that the change in rates should be effective on the first day of the second month after the economic event which calls it forth, is intended to provide the necessary time for the distribution and introduction of new withholding schedules. Reasons for suggesting a dual index, including price change, for increasing tax rates are discussed below.

Such a provision would not be completely automatic, for, of course, administrative action would be necessary to implement it. Since, however, administrative action with no discretion would be provided for, this method may be referred to as automatic timing.

I have suggested using the *Monthly Report on the Labor Force* as an index. An alternative index, namely, national income or personal income, would not be feasible, by reason of the greater length of time required for the collection of the necessary data. Another set of possible alternative indexes would be price series—consumer prices, for example. Professor Hart suggested the rate of change in consumer prices in his 1941 proposal for anti-inflationary changes in tax laws; I am suggesting a combined unemployment and price index, to serve a similar purpose. My preference for use of an unemployment series rather than a price series to indicate when a downswing requires action, rests upon a judgment concerning the operation of the economic system and the causal factors influencing it, which it would be a digression to state here.

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[2] If the practice became general of reducing hours materially before laying off employees, some alternative measure reflecting hours of work would have to be devised.

The second method—use of a Congressional trigger to fire a gun which had previously been loaded—may be illustrated by the proposal advanced by members of the research staff of the Committee for Economic Development in 1946 in *Jobs and Markets*. It was there proposed that Congress should work out and enact a provision for tax reduction to take effect if, as, and when appropriate during the reconversion period. The piece of legislation would not set an effective date for the tax reductions, but would provide that they should be made effective by a joint resolution of Congress, if and when economic conditions made it appropriate. My proposal, namely, that this device should be used more generally, is, I think, peculiarly appropriate for tax changes. For Congress will not yield control over tax changes to administrative discretion, but might preplan changes which could be made effective, when conditions warranted, by simple passage of a joint resolution by Congress itself.

A joint resolution requires the signature of the President whereas a concurrent resolution does not. Provision for use of a joint resolution seems appropriate here, because it seems appropriate that the President should retain a voice in the timing of tax changes.

As a third method, Congress might authorize administrative discretion in changing policies, subject, however, to Congressional veto of the proposed change. By this device, if both Houses of Congress pass a resolution opposing the proposed change, it fails of effect. But if either house sustains the Presidential recommendation, it becomes effective. An example in actual practice is the provision, in the Reorganization Act of 1939, and again in the Reorganization Act of 1945, for presidential reorganization of the administrative departments, subject to Congressional veto. Under these acts, five major reorganizations of administrative departments have been proposed by the President and sustained by one or the other house of Congress, so that they went into effect. A hypothetical example in the field of fiscal policy would be establishment by Congress of "target levels" for reduction of taxes, with the Treasury or the President granted authority to set dates for steps toward those levels, subject to Congressional veto of the dates proposed.

Finally, a fourth possible method would be the granting by Congress of full administrative discretion, within wide limits. An example is the authority of the Board of Governors of the Federal Reserve System to vary rediscount rates at will, and to vary the reserve requirements for member banks within upper and lower limits set by law.

Conditions for Success of the Mechanisms. Before it can be decided whether these measures would make it possible for governmental measures to counteract economic fluctuations effectively, and if so which type of measure is most desirable, it is necessary, I think, to consider certain conditions which must obtain if attempts to stabilize economic fluctuations are to be successful.

One such condition is that the attempt must not be made to confine fluctuations within too narrow limits. To do so would involve the danger of producing perverse results through errors in judgment. Suppose, for example, that an attempt were made to hold unemployment (as now defined in the *Monthly Report on the Labor Force*) between upper and lower limits of two and three million, and therefore an expansionary force were thrown into operation as unemployment touched the three-million level. Then the expansionary force might come into play just as autonomous forces were themselves reversing a small temporary downswing which had been mistaken for a more basic trend. The combined effect of the autonomous plus the deliberate expansionary forces might be to cause a significant inflationary surge. The effect that expansionary measures might have had, if thrown into operation as the recession of 1927 reached its trough, is a case in point. To avoid this danger, unemployment should be allowed to reach say five million before countering action is taken. In fact, if we were successful in holding unemployment below five or six million at all times, we should consider ourselves remarkably successful.

I would not like to have these comments interpreted to mean doing nothing to relieve the unemployed until unemployment reached at least five million. On the contrary, our system of unemployment insurance should be expanded in coverage, and the benefits available under it increased, not only because of the automatic stabilizing effect, but because it is, in my judgment, immoral—in the truest social sense of that word—for the coverage and benefits of the unemployment compensation system of so wealthy a country as the United States to be as limited as ours now are.

It is important to note that this rule—that measures should not be initiated until it is certain that reversing a trend will not carry too far—applies on the up side as well as on the down. We must be as afraid of unemployment as we are of inflation. If five million is accepted as the maximum tolerable level of unemployment, then supporting measures should not be removed, or contractionary measures initiated, as soon as unemployment falls below that level. Nor, in fact, should action be taken as soon as unemployment approaches the minimum of two million. Rather, it should be taken when, with unemployment near the minimum, upward price pressures of some strength exist. Only then is there indication that with public measures withdrawn, other forces may be sufficient to sustain full employment.

These considerations of course pose the now familiar dilemma: What if, with the existing structure of our economic system, inflation appears before full employment is reached? For lack of time I can touch upon this problem only cavalierly. The evidence of 1946 and 1947 does not to my mind demonstrate that this feared situation is inevitable—in fact the evidence of the second quarter of 1947 gives a certain amount of hope to the contrary. Secular increase in productivity may be sufficient to contain wage pressures without price rise. In my judgment, the chances are good that this is true. If it is not, slow price rise—say ¼ of 1 per cent per month—should not be the cause for relaxing supports needed to sustain high employment. But it should be the signal for specific action directed at the causes of price rise. Considerably more rapid price rise before full employment is approached would be a warning that imperfections in competition, and group pressures, were seriously threatening the stability of our capitalist system. They would indicate the need, if not the feasibility, of measures too comprehensive and drastic to be outlined casually here.

A second condition is that a succession of measures shall be available if necessary at any given level of unemployment. For if a rigid plan is set up by which only one measure is available at unemployment of five million, a second at six million, and others at successively higher levels, then it could easily happen that the forces producing a downturn are just strong enough so that the first measure counterbalances them and prevents a further decline. If no added measures are available at that level of unemployment we may then find ourselves frozen in a quasi-slump. To mention only the traditional measures, two layers of changes in income tax rates might be planned, a shelf of light public works, one or more shelves of heavy public works—for use in serious depression—and a set of monetary policies.[3] At present, since reduction in excise taxes should be a part of our plans for postwar tax reduction, proposals for reduction of excise taxes toward long-run targets might be added to this battery for use in case of a slump; but in general excise taxes should not be among the programs subject to frequent change.

A third condition is that plans bold in magnitude must be available. In an economy the size of ours we need to think in terms of measures larger than we have faced in the past. The average budget deficit in the thirties was 2.6 billion dollars, and the largest, 4.5 billions; the average and largest cash deficits were about the same. If we are to deal adequately with situations which may and probably will arise, a combination of measures which have a stimulating effect equal to deficits of two or three times this magnitude may be required. On the other side, our cash surplus at present (when adjustment is made for seasonal variations in tax receipts and expenditures) is running at the year's end at perhaps 5 billion dollars per year. The most significant fact about that level of surplus as a measure to counter the inflationary pressures we have been experiencing, is that it does not seem to be large enough.

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[3] Including control of consumer credit, and variation in federal supports and guarantees of loans; for example, housing construction loans.

A less important condition is that steps should be taken to prevent a perverse "anticipation effect." For example, at a time of inflationary pressure and high taxes, the possibility of a slump and lower taxes next year might cause producers to withhold their products in anticipation of lower income taxes just at the time when the maximum volume of supply is highly desirable. This would be true, of course, only of certain types of producers. It might well be true, for example, of grain growers. This difficulty can be eliminated in part by the introduction of averaging into our income tax system. If a taxpayer could average his income over a period of years in determining his tax liability, regardless of the specific time when he marketed his produce, he could shift his income so that in effect it was no greater during a period of high taxes than during a period of lower taxes. This would remove much of the incentive to gamble on tax reduction.

Fifth—a condition which has been implied repeatedly above—the methods for initiating changes in measures must be such that reasonably prompt action is possible. Otherwise the goal of preventing major fluctuations may be unrealizable.

The final condition which seems to me essential is a special case of the one preceding. If sufficiently prompt action is to be achieved in all circumstances, some degree of administrative discretion is necessary, for there may well be some contingencies too complex to be provided for in advance. If, for example, a slump is progressing with unanticipated speed—as in 1931—it may become clear that several measures should be thrown into the breach at once, without waiting to see whether the first measure used was adequate.

The Choice of Methods. It is clear, I think, that any of the four methods which I have suggested for initiating changes in employment measures—automatic yardstick, Congressional trigger, administrative discretion subject to Congressional veto, and complete administrative discretion—could be adapted to satisfy the first four conditions for successful operation of stabilizing measures; namely, that too narrow confinement of fluctuations must not be attempted, that a succession of measures must be available, that measures planned must be bold in magnitude, and that a perverse anticipation effect must be avoided. The choice of the method most suitable for timing any given measure must then rest in part on judgment as to which method will permit sufficiently prompt action and sufficient administrative discretion and in part on political feasibility. For the method which in the abstract is the most efficient is in reality the least efficient if its adoption cannot be obtained.

For monetary controls—notably debt management, control of rediscount rates for Federal Reserve member banks, and open-market operations—complete administrative discretion within wide limits is traditional. It would be desirable—and it may be within the limits of political feasibility—to preserve that tradition by granting to the Board of Governors of the Federal Reserve System power to control installment credit terms and—far more important—authority to establish security reserves for all commercial banks and to vary them within wide limits specified by law.

For fiscal policies—whether relating to taxes or to federal expenditures—it seems clear that Congress will not grant any great measure of administrative discretion. So long as we retain governmental machinery embodying the doctrine of separation of powers, we probably must expect Congress to retain the power of the purse—though this is a matter of degree, not of control or no control, and Congress may grant varying degrees of delegation of that power in various circumstances.

Nor can Congress be expected to delegate the power of the purse to automatic yardsticks, though the constitutional reasons for not doing this are not compelling.

If flexibility of fiscal policy is to be attained, it must therefore be through methods by which Congress retains basic control of the timing. So far as tax flexibility is concerned, there seems no technical difficulty whatever in the way of preplanning tax changes, then tripping them off, when developments warrant, by joint resolution.

The tax most suitable for such manipulation is of course the individual income tax. Variation in that tax runs into the understandable difficulty that it is apt to be much easier to obtain reduction than to obtain an increase when increase becomes appropriate. It may be of considerable psychological advantage to consider the prosperity level of income tax rates as standard rates, and any reduction in rates in depression as a temporary abatement of the normal rates. Congress might also not be averse, once it had adopted the idea of flexibility, to providing that whereas tax reduction would be initiated by Congress, restoration of the standard rate might be accomplished either by joint resolution or by presidential proclamation subject to Congressional veto.

So far as expenditure programs such as public works are concerned, a certain degree of administrative discretion is essential. Congressional acceptance and storage of a shelf of specified projects, to be initiated when the economic stimulus is needed, will not work. The shelf would constantly be changing, both because current authorization during prosperity of projects that could not wait would nibble away at it, and because plans, like structures, slowly or rapidly become obsolete. To ask Congress to approve, project by project, the seepage of projects from a list and their replacement by others would be to destroy the chance of success of the program. But it would be feasible for Congress to set up in advance the standards for public works projects and public works grants; to create machinery for planning of an adequate shelf of projects; to determine the aggregate size of a national program of employment-sustaining public works activity and to initiate that program when circumstances dictated by simple speedy action; and finally to govern by specific legislation the nature of individual projects with especial national social significance, such as development of the Missouri River valley by a Missouri Valley Authority.

The Danger of Perverse Effects. The tools thus exist for planning in advance changes in fiscal and monetary policies, and for putting those changes into effect as economic conditions change, with only the minimum time lag needed to recognize the existence of change in conditions and to set the administrative machinery in motion. To the use of these tools one main objection is advanced which may be considered here. It is objected that because of lags in timing, the measures will act perversely, exaggerating instead of countering economic fluctuations.

The danger of perverse effect is far less now than it would have been twenty years ago, because the introduction of automatic stabilizers into the economic framework has damped down the magnitude of swings in economic activity resulting from any push in the wrong direction, or, for that matter, in the right direction.[4] Strengthening of those automatic stabilizers is in order, as I have suggested. The remaining risk of perverse effect is minimized by two provisions, already discussed, which ought to be a part of any scheme: that the lag in adapting policies to changed conditions shall be held to a minimum (including that reassessment of policy measures shall be possible with the same short lag); and that to avoid confusing a minor fluctuation with a major change in level of aggregate demand expansionary action should be withheld until employment has fallen to the lower tolerable limit, and contractionary action until employment has risen to the maximum safe limit and upward price pressures are present. With these principles observed, the reinforcement of deliberate measures by an unanticipated

[4] Professor Musgrave and Miss Painter have estimated that existing automatic stabilizers reduce by one-third the amplitude of fluctuations.

reversal in autonomous forces or in what the econometricians call predetermined variables, could hardly result in swings beyond manageable and tolerable limits.

It has been suggested by some that changes in fiscal measures and the anticipation of such changes will lower the average level of business activity by creating uncertainty adverse to business planning. This is a valid objection to frequent changes in some types of public measures, but its application to the measures discussed here seems to me to involve misconception of the nature of the stability which is favorable to effective business planning—one important element of which is stability of the market. The measures proposed here, if effective, would stabilize the aggregate market beyond any previous business experience; that stabilization should be a highly favorable development.

The barrier to effective use of public measures to stabilize economic activity consists no longer, in any major degree, in lack of technical tools or deficiencies of economic analysis, but in lack of the necessary persuasions in the hearts and minds of the men who determine public action.

One step in the direction of surmounting that barrier is improvement in the machinery within the federal government for the development of economic programs.

Creation of the Council of Economic Advisers provides a body of professionally able personnel to co-ordinate economic policy planning in the executive branch. That co-ordination will not however reach maximum effectiveness until a mechanism for better staff work among the executive departments—better integration of over-all economic planning with specific economic and administrative planning—has been set up. Witness to the need is the impression given to the public, or at least to leading newspapers, of confusion within the Administration concerning the President's anti-inflation program of November, 1947. Perhaps one desirable step would be establishment of the office of secretary of the cabinet, after the British precedent.

Creation of the Joint Committee on the Economic Report provides a foundation for integrated policy analysis by Congress. But no sturdy structure will be erected on that foundation until Congress is served by a much enlarged permanent technical staff. The Reorganization Act of 1946 provided a first step in this direction. Perhaps it is not going too far to say that Congress needs at its service the equivalent of a combined Council of Economic Advisers and Bureau of the Budget.

But improving federal machinery is only one step. For the President and the members of Congress are not after all the men who determine public action. The basic need is the spread of understanding of these rather technical matters among the public and a wider group of its leaders, and specifically among the members of those social groups, and their leaders, whose conflicts of interest must be compromised if we are to achieve successful economic action in a democratic society. Professor Hart has thoughtful suggestions to offer concerning that problem. That spread of understanding is occurring; whether or not it will occur in adequate measure is in part the responsibility of the economic profession.

There are prophets who affirm that we will not take the necessary steps for economic stability until we have plunged into another major depression. If so, the necessary steps may be accompanied by—or replaced by—irrelevant social changes based on misconceptions of the problem, and on widely felt emotional urges to fix the blame for one's misery, to absolve oneself of a feeling of incompetence and failure, and to gain a feeling of security. How good or ill will be the resulting changes in our social system will then be in part in the laps of the gods.

TIMING AND ADMINISTERING FISCAL POLICY: HOW TO GIVE RELEVANT COUNSEL

By Albert G. Hart
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I. *Need for Clearly Applicable Counsel*

It is up to the economic profession to translate its findings on fiscal policy into counsel which is clearly applicable in recognizable cases. At present we are full of good advice about economic stabilization policies; but the people who need advice may not be able to tell whether it fits their case. To give a homely illustration, it is as if we could tell the farmer just what was best to plant for a dry season—but could give only the vaguest notion, at the time of planting, as to which kind of season it was going to be.

On the whole, our advice runs in terms of what to do in a deflation and what to do in an inflation. But the situations we are talking about can often be identified only after the fact. An alert economist does know, of course, whether there is a depression at the time he is talking, and if so, roughly how acute a depression. He may sometimes know whether the situation a few weeks ago was one of upswing or downswing. But only rarely can he be sure of an upward or downward turning-point in the recent past—let alone of one in the near future! Since our advice about handling deflations and inflations tends to vary with the stage the process has reached, this difficulty of recognition threatens to make our advice useless.

The upshot is that we need a change of emphasis in fiscal policy discussions. We have to be much more conscious what kind of data will be at hand when it is time for policy decisions, and what the decision-making process will be like. I do not mean that we can reduce all our counsel to formulas which read, "If A has happened, then do X; if B has happened, then do Y." Neither do I mean that if we scent politics in decision-making we should give our advice exclusively as amateur experts on politics and throw our economics out the window. As I sense the problem, what we need is a peculiar brand of idealistically-slanted realism. We can fairly assume that the evidence available for decision making will be somewhat more full and up to date than we now get—but only within attainable limits. We can fairly assume that our political leaders aim to get the business of economic stabilization done—if they do not, no amount of good advice will help. But that does not warrant us in designing our policies for application by a benevolent despot, or by a completely dispassionate and enlightened super-civil servant (the economist's dream-self, miraculously raised to power), or by a unanimous consensus of people who manifestly cannot agree unanimously. If our advice is to mean anything, it has to be applicable by politicians—perhaps unusually high in intelligence, public spirit, courage and leadership, but still politicians. It has to be applicable by processes which grow out of American traditions, safeguarding freedom and opportunity, and minimizing use of "directives" from government to individuals and firms. And these processes have to be capable of forming public opinion which will back their extension.

In view of uncertainties, we must not be ashamed if some of our advice is rather inglorious. Sometimes there may be room for a dazzling stroke of policy based on a clear-cut forecast. But more often, probably, our part is to show how to balance one risk against another, and recommend a policy that will work out reasonably well over a range of likely contingencies.

II. *Lessons of 1946-47 Experience*

The experience of 1946-47 should be able to teach us a great deal. Of course, some of us have proved to be right in stressing inflation dangers and the need of monetary-fiscal countermeasures. Doubtless others of us will eventually be proved "right in their forecasts but wrong in their timing" by a downturn. But something about the situation reminds me of a thought-provoking experience in my boyhood, when I first came to be interested in high school football. Having been firmly indoctrinated with the faith that our team was bound to win, I did not see much of the first quarter, for I stationed myself near the other team's goal line, where I thought the play was bound to be in a moment. In the second quarter, I found I had a fine view. But it was not because my judgment was any better, but just that I had not taken all the facts into account. I had forgotten they changed goals at quarter-time!

The last two years are bound to be sobering to any economist who looks back: (1) they show how hard it is to be a participant in current affairs and yet keep enough objectivity to grasp them; (2) they show how cryptic the situation is when we have full employment and suspect a downturn in the offing, and how easy it is in such a period to rationalize the rejection of anti-inflation measures—or to rationalize acceptance of measures which will prove inflationary; (3) they show the need of national leadership which can persuade interest groups to accept limitations in the national interest.

1. If the period teaches us nothing else, it ought to teach us something about the way our economic thinking is unbalanced by current events and propaganda. The price control wrangle of 1946 shows only too clearly how we go astray. A few economists yielded to the tempta-

tion to ride down the roaring stream of anti-price-control propaganda. Others stiffened where they stood and stuck to the labor union line. Many were deafened by the clamor and paralyzed by inability to sort out their thoughts. Even minds which were well ballasted with information were rocked about by the sheer force of assertion of half-truths from one side or the other. And in the end, it seems to me, our economic counsel lost much of its value because it was not properly integrated with political analysis. Most of us were talking on the assumption that *if* price control were extended it would be continuously on a reasonably effective basis, and that the public would not take termination to be a practical issue for at least half a year after the extension. But it was in the nature of American politics that the extension bill would reach President Truman's desk at the last minute, and that Congress would offer him a close decision whether to sign it or veto it. It was in the nature of things, also, that speculation on termination of controls would undermine the meat supply, build up the black market, and thus make premature termination unavoidable. By hindsight, we should have advised the President to veto the bill he received, and to announce at the same moment that time had run out and there was no use trying to resuscitate OPA. Before that, we should have made it plain that a last-minute extension was almost sure to fail, and that if agreement could not be reached several weeks before the June 30 deadline it would be better to drop everything but rent control. I am sure that if we called the roll of the Association we could find a good sprinkling of economists who saw this in advance. But somehow the economists who got the best hearing (academically, journalistically, and politically) did not manage to get it straight.[1]

2. Ever since early 1946, we have been prosperous but in fear of a recession. By hindsight, a stern anti-inflation policy (refusal of tax reductions and tight credit) would seem to have been called for. But from time to time anti-inflation proposals have been turned down on the ground that they would take time, and that by the time they really took hold, our problem would be deflation rather than inflation. Inflationary measures (notably wage increases) have been defended on parallel grounds. Those who feared a slump have even been able to argue that the downturn was just past at the moment of discussion—pointing to the stock-market slump, or the physical volume of nondurable-goods sales, or pay rolls deflated by a price index, or latest rumors about

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[1] Rereading the C.E.D. staff report on the transition (M. G. de Chazeau and others, *Jobs and Markets* [New York: McGraw-Hill, 1946]), I find a three-sentence paragraph on p. 61 and one sentence on p. 123 in which we urged timely action—but no preview of the dangers of a hiatus in price control, or of termination disturbances. I believe the same criticism would lie against most other economists who had to take a public position at the time.

evaporation of automobile dealers' waiting lists, as indexes of decline which would soon be followed by our general indexes of employment and production.

Now while some economists sized the picture up better than others, and we might all have done better by better systematized analysis and discussion, it seems to me that we could not have expected to know definite answers. The Council of Economic Advisers were right when they said our prosperity rested on "temporary props." Some of these "props" might have given way and induced a slump. Who can say that more favorable weather (meaning a better coal situation in Britain and elsewhere in Europe, better crops in Europe, and a good corn crop here) might not have changed our export balance and our price situation so as to give us a downturn before this?

This cryptic character of high-employment-with-threatened-recession is not a unique attribute of 1946-47. On the contrary, it is just the sort of situation a successful policy of economic stabilization would keep us in. Furthermore, it is more or less characteristic of all prosperities. The props of prosperity are always temporary; a long prosperity is a period when new props can be pushed in under as the old ones come out. True, the 1946-47 prosperity has been abnormally inflationary on several counts. We started with an untested excess of liquidity. The price level was in flux in 1946, and even in 1947 many of the forces we think of as creating a price-stabilizing "rigidity" were actively pushing prices up. Inventories (especially of coal) have been phenomenally low. This made strikes cut deeper than usual and gave labor unions a temporary gain in bargaining power which was bound to push prices up. But for all that, the experience should be a reminder that when production has no way to go except down, there is a bias against measures that might push it down even though default on such measures is inflationary.

3. The 1946-47 experience also stresses our dependence on discipline among our great interest groups. I am skeptical about schemes for stabilizing the economy by getting business firms or labor unions or farmers to act contrary to their own interest within the existing framework of rules. But as a minimum, we need some willingness to accept rules—whether permanent or temporary—which limit the pursuit of advantage.

During the war, we had a price-stabilization compromise. Many labor unions did not like the "no strike pledge," nor wage control. Many businessmen did not like price control, rationing, allocations, excess-profits taxes, high farm prices, or "union security." Many farmers did not like price control, gasoline rationing, subsidies, or the rise in the status of unions. But these evils, unacceptable singly, were given almost unanimous acceptance as a combination. For everybody saw that it was more important to get the nation's business done under a program which called on each group for sacrifices than to wrangle over who got what.

This compromise was shattered in the fall of 1945 by derationing and the repeal of the excess profits tax. Excess profits tax repeal meant "cutting a melon" for business, and created a climate in which the labor union policy of massive wage increases and the farmers' half-political-half-speculative "strikes" against meat price control were inevitable. Maybe these union and farm policies were wicked; but the position of those who say so would be stronger if they bracketed in the wickedness of premature tax cuts.

It is too easy to forget the need of compromise in this sense. Of course we have an established compromise on many of the needed "rules," and under more favorable conditions it may suffice to make prosperity noninflationary. But it may not serve for this purpose, and it is certainly not good enough to make steady prosperity automatic. Plans which would have to be imposed by one group (whether by labor unions or by business) might as well be thrown out. In planning for stabilization it is genuine compromise we have to look for. We need combinations of measures which the groups they inconvenience will accept both because they can see public advantage in them and because they can see other groups accepting comparable inconveniences. Finding such combinations and getting acceptance for them is one of the chief tasks for national leadership—and one in which economists should have a big part.

III. *Improving Automatic Stabilizers*

Coming back closer to the focus of this series of papers, the first thing we should do about the timing of fiscal policy is to strengthen our "automatic stabilizers." I agree with Dr. Hagen and Dr. Musgrave that they are likely to prove inadequate, and that it would be irresponsible to give out false hopes of their complete adequacy.[2]

But I think there are large possibilities here, of the sort on which a democratic consensus can be built. My guess is that the "swing" of our tax system, social security, and other automatic stabilizers pushes the government toward a deficit by rather over a quarter of any swing in national income. This implies that a drop of 5 billion dollars in the annual rate of "offsets to saving" could be absorbed by a drop of around 20 billions in the level of national income—enough to provide a good deal of protection against a flip-flop in inventories or foreign trade.[3] Furthermore, my impression is that the relative "swing" could be considerably strengthened.

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[2] The businessmen of the C.E.D., whose proposal for a "stabilizing budget" rests primarily on automatic stabilizers, are not very specific in *Taxes and the Budget* (their policy statement of November, 1947) as to how strong a stabilizing effect they expect. But the *New York Times* (November 1, 1947) reports Chairman Paul Hoffman as saying that "the drop between the peaks and valleys probably can be held to 20 per cent, or perhaps 15 per cent."

This strikes me as a reasonable forecast for this type of policy. The result it promises is not good enough to satisfy an economist. On the other hand, it would represent a great improvement over interwar performance.

The main improvements in "automatic stabilizers" which I think I can see are (1) in their nonmonetary framework; (2) in personal taxes; (3) in transfer payments; (4) in banking.

1. Discussion on the effects of variable taxes has brought out clearly the importance of distribution of changes in income. In limiting a recession, we hope that lower taxes will work by enabling people with reduced incomes to maintain a threatened standard of living.[4] Now if a recession puts everybody on short time, everybody's consumption is threatened and this leverage can work on everybody. At the other extreme, if the recession throws some people completely out of work and everybody else has an unchanged money income, lower taxes have to work by getting people with unimpaired incomes (but with savings incentives heightened by insecurity) to spend more. Manifestly this is much less reliable. I infer that monetary-fiscal stabilization measures will work better if labor contracts (like some conspicuous C.I.O. contracts) call for shortening hours considerably in case of a recession, before resorting to layoffs. This is the leading case, so far as my knowledge goes, of a concrete policy outside the monetary-fiscal field which can enhance the effectiveness of monetary-fiscal measures. But more generally, factors which make prices less likely to rise (and less likely to be expected to fall) are favorable from this standpoint, which may provide a good deal of scope for policy.

2. As to personal taxes, the gain in "built-in flexibility" through the adoption of withholding and of quarterly payments under declarations of estimated income has of course greatly improved them as an automatic stabilizer. There may be room for further gains in the handling of declarations; I have not been able to satisfy myself one way or the other. The greatest chance of improvement in timing is in tax refunds, which in case of a slump might run to 3 or 4 billion dollars a year. As matters stand now, if a man is unemployed for a spell, he gets a claim to a tax refund next year. From the stabilization standpoint, the moment for the refund is when the man is out of work. This could be cured

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[3] This finding conflicts with that which Dr. Musgrave reports he is reaching in his forthcoming note on "Built-In Budget Flexibility" (*American Economic Review*, March, 1948). Not having seen this note, I cannot trace down the discrepancy. My finding rests primarily on the high income elasticity of income tax liability, corporate and individual.

[4] This point applies both to reduced tax liability under constant rates with reduced income and to tax reduction under a flexible rate structure.

in part by the British system of cumulative withholding.[5] But the really tidy remedy would be to replace the present income tax exemption by a weekly or monthly family allowance check of equivalent value (roughly $2.00 per week per person), and withhold taxes on total pay without exemptions. In case of unemployment, the tax would stop at once, and the exemption allowance checks would keep on running. This adjustment would improve the equity and simplicity of taxes as well as their timing.

3. On the side of transfer payments, a systematic national policy of paying "benefits" to farmers, veterans, and others when, as, and if needed would convert these payments into an automatic stabilizer. A good example of proposals along this line is that of T. W. Schultz for helping farmers in case of a slump by "compensatory income payments" in lieu of price maintenance schemes.[6]

4. In the field of money, the most clear-cut automatic stabilizer plan is the Graham commodity reserve proposal. If we could be secure against an upward drift of price levels, or monopolistic pressure on commodities included, this plan could contribute greatly to stabilization—having the tremendous advantage of being a monetary scheme which works by income account rather than by capital account transactions. But as I think about it, I become more and more concerned about the likelihood we may have to renegotiate our "stabilization compromise" occasionally. This is likely to involve "retreat to a higher price line," and I am doubtful that we can afford to complicate the negotiation by tying in the need to devaluate a commodity reserve currency.

On a much less ambitious level, the powerful destabilizer of commercial banking (a staple of all business cycle theory) could be toned down by higher reserve requirements. This is an argument for a "100 per cent banking system." But short of that, it is an argument for the "security reserve" schemes advanced by Seltzer, Langum, Leland, and others and lately advocated by Governor Eccles. (It is an interesting index of lack of public comprehension of money that the press discussion bypasses the question whether we want a cycle-sensitive banking system.)

Inevitably, discussion of automatic stabilizers leads up to the question whether economists should adopt the "stabilizing budget" scheme of Beardsley Ruml and the C.E.D.—planning for a balance (including debt retirement) in prosperity, and planning to let tax rates alone and run a deficit in case of depression.

It strikes me that this scheme has a strong claim for professional support as against alternative budget balancing schemes. It preserves the basic merit of budget balancing—that of measuring marginal public expenditures against marginal private expenditures by the dramatic medium of looking at a marginal tax. I am inclined to accept the C.E.D. argument that its scheme is better budget balancing than others because it involves less forecasting, and that on a more assured basis. It is also obviously better "functional finance" than other budget balancing schemes because it can never call for raising tax rates when common sense says they should be cut. The arguments for the proposal are valid as far as they go, so that advocating it cannot mislead the public if we avoid promising too much from it.

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[5] This system works out rather badly, though, if unemployment comes early in the year.

[6] T. W. Schultz, *Agriculture in an Unstable Economy* (New York: McGraw-Hill, 1945), pp. 220-235.

Whether economists should urge the public to go further and drop budget balancing altogether is a matter of judgment. No budget balancing rule can be an all-sufficient economic stabilizer. But a person who thoroughly understands the logic of "functional finance" can still honestly prefer the Ruml-C.E.D. "agreed-high-level-balance" formula on some combination of the following grounds: that he is very skeptical of forecasting, and feels nonautomatic stabilizers cannot be used so as to do more good than harm; that he is very much in fear of "governmental extravagance" in its defensible sense of uneconomic use of resources, and believes the safeguards of "functional finance" are inadequate; that he is optimistic about a combination of discretionary monetary policies (or monetary policies, plus public works, plus price policies) with automatic tax policies.

The upshot is that we should tell the public, "If you want a budget balancing scheme, this is it." We should also warn them that probably common sense will sometimes call for tax cuts because of depression,[7] or for increasing the debt-retirement charge because of inflation. If we as individual economists reject the arguments I have just listed, or fear "stagnation," and therefore want to reject budget balancing, we have no obligation to supress our opinions. But it seems to me we are within striking distance of a consensus that the "agreed-high-level-balance" would be an improvement over traditional notions of balance, and that economists are conscientiously bound to help people agree to go at least that far.

IV. *How to Tell When Who Should Do What*

How much can economists now say about monetary-fiscal policies that fit the kind of situation we are likely to observe? A good deal—despite the pessimistic tinge of my earlier remarks. Here is a sketch, which is all that time permits. I propose to discuss maxims of policy (1) for flexible policy in general; (2) for deep depression; (3) for well-defined but moderate recession; (4) for prosperity; (5) for prosperity with inflation.

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[7] Tax cuts to meet a slump could be reconciled with the Ruml-C.E.D. scheme by tagging them as temporary abatements of standard rates. This way of handling them is desirable also on other grounds.

1. It is always in season to improve the stabilizing machinery. This includes adjusting the nonmonetary framework (notably labor policy and price policy) to make monetary-fiscal stabilizers work better; improving the "built-in flexibility" of our system of automatic stabilizers (see above); setting up discretionary measures ready to go (along lines discussed by Dr. Hagen).

2. We may sometimes get into a deep depression—through failure of the stabilization machinery under an overload, through errors in policy action, or, most likely of all, through a default of policy. Experience shows that when activity is low there are limits to the speed of revival (though expansion should go more quickly when the last phase of full employment activity is recent rather than remote). This calls for intense use of the measures fitting moderate recession. In addition, it suspends temporarily the normal standard of worth-whileness in government expenditure. The alternative to government use of certain resources (pending recovery to or toward full employment) is unempoyment rather than private use; the margin is shifted, particularly for public works.

3. For a moderate but well-defined recession (with unemployment, say, above four million), there is a strong case for the use of discretionary fiscal policies which have been set up ready to go (along lines discussed by Dr. Hagen). I should favor temporary abatement of personal income taxes, and reduction of excises and customs toward predetermined "destination levels." Expansion of light public works would be in order. As Dr. Hagen points out, advance preparations should include plans to intensify these measures in case unemployment grows worse, or in case it levels off at (say) five million or more.

What if moderate unemployment is experienced along with price inflation?[8] The answer depends on circumstances. If both developments spring from a recent sharp change in the composition of demand, the price rise may safely be ignored unless it goes very fast or continues more than a half-year. Otherwise, it seems to me we should go on with anti-unemployment fiscal policies and declare an open season for the reform of price policy.

4. For prosperity, presumably our counsel on short-run measures

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[8] In terms of my metaphor of two years ago, this is a situation where the "gong" and the "whistle" both sound at once.

must be to let well enough alone. Light public works as well as other government outlays should be economized to the margin where they are worth more taxes. Any temporary tax abatements put in force in a preceding recession should be allowed to expire.[9] In monetary policy, it would be a good plan to take up slack in Dr. Hardy's string (but without giving a tug), and to let long-term interest rates rise moderately if market forces work that way. Just because pressure to make short-run policy adjustments is low, long-run improvements of fiscal and monetary structure should go on the agenda in such periods.

5. Prosperity with inflation, as we have lately observed, is the most puzzling situation of all. Temporary increases of taxes would make sense; but political objections to them are much more serious than to temporary abatements. Public works can to some extent be held back; but the lag in public works is serious, and the margin of public works decisions may be thrown out of line. Monetary policy is our obvious recourse. Like Dr. Hardy, I suspect that our tendency to sheer off from it may be from fear it may be too effective, despite our rationalizations about its ineffectiveness.

Our sense of helplessness about monetary policy, it seems to me, springs largely from an oversimplification—the identification of monetary policy with interest policy. At the nonbank-public level, liquidity affects the level of investment and of saving attempted at a given interest rate.[10] At the bank level, steps which affect the public's liquidity are governed in the first instance by the reserve position. The key tool of monetary policy is open-market operations—including those of the Treasury. If we really want to oppose inflation in 1948, the most promising line is to let the government's cash surplus pile up in its accounts at Reserve banks. Whether it is then used to retire Federal Reserve holdings of securities is a side issue; what counts is a pinch on bank reserves, which will be transmitted to the nonbank public as intensified "credit rationing."

True, interest policy can go far to nullify open-market policy. If banks are free to turn their Treasury certificates into cash reserves, reserve requirements are open-ended. To create a really acute pinch on bank reserves, we must either deprive banks of their freedom to cash these assets without replacing them (by a security reserve requirement), or else give them interest incentives not to exercise that freedom. Similarly, we must avoid open-ending reserve requirements by a rigid support at attractive levels for Treasury notes or bonds. On the other hand, 1946 experience with a rather moderate pressure on bank reserves (resulting from the churning about of funds in the process of redeeming bank-held government debt) was rather encouraging.

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[9] On this point I diverge from Dr. Hagen. But note that I contemplate recession reductions toward "destination levels" for excises, which would not be reversed.

[10] In theoretical discussions, we tend to conceal this from ourselves by assuming a perfect capital market, with everybody free to borrow or lend all he wants at a "market rate." The importance of liquidity to a firm or household depends precisely on the fact that its borrowing power is limited, so that this assumption pushes out of sight the real influence of the monetary situation.

The great argument against raising interest rates, to my mind, is that expectations about later rates are involved; so that higher rates in (say) 1948 may create psychological barriers to lower rates in (say) 1950. It is hard to recommend policies now that may tie the hands of policy later. But this objection applies to a policy of rigid defense of the wartime "pattern" and level of rates, as well as to higher rates. My feeling is that if we can preserve the symbols of low long-term rates—that is, if we can avoid floating new Treasury bonds above 2½ per cent, or letting outstanding bonds go to dramatic discounts—we can have higher interest rates to back up anti-inflationary open-market policies, without long-term damage. If prices of outstanding bonds sag, they will lose some of their "moneyness," which is anti-inflationary. The right level to "support" government bonds is slightly below par.[11] There is too much double-talk about this whole field of discussion. "Protection" of bondholders against a fall of market value is much less important to them (let alone to the public in general) than protection of their income and principal against attrition of purchasing power through inflation. Too much certainty about bond prices is inflationary—and thus against bondholders' interests.

Applying this reasoning to current events gives much the same answer we might have got any time since the imminent collapse of price control became clear in the middle of 1946. The year 1948 does not look any more inflationary than 1947 on most scores. The Marshall Plan points to a tapering off (not an increase) of inflationary pressure from the foreign balance. The main new inflationary factor in the situation is the bad corn crop, leading via meat prices to increased wage pressure; this seems to me to call for special measures, along the line proposed by Dr. Franco Modigliani.[12] The main thing the Marshall Plan does to the inflation situation is to extend our horizon, so that we must face the likelihood inflation will go on for a year or more, unless policy becomes effectively anti-inflationary instead of relying on a prospective down-turn to end our troubles.

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[11] I am here maintaining the position the C.E.D. research staff took nearly two years ago; see M. de Chazeau and others, *Jobs and Markets* (New York: McGraw-Hill, 1946), pp. 96-98, 123.

[12] See the letter on the editorial page of the *New York Times* (December 21, 1947).

V. *The Art of Learning from Experience*

Democratic government depends on learning from experience. We can scarcely count on public opinion to be continuously right, or even to avoid major errors. What we do count on is that mistakes will be recognized and corrected.

Learning by trial and error is not an automatic process. It is next to automatic to throw out leaders who happen to be in charge when things go very wrong, and on grounds of morale this is probably healthy: it is easier to make a fresh effort under fresh leadership after a defeat. But this sort of selection of leadership is not very selective among policies.

In the democratic learning process, economists have a great responsibility. In the first place, to offer some sort of objective account of recent developments on which people can agree is no mean contribution. Too much of the talk that reaches the public offers special lines of interpretation in terms of group interest, and encourages people to disbelieve whatever fails to match their group "line." If economists can get some attention for the facts and for some rudiments of monetary-fiscal analysis, they can help against this centrifugal tendency. A good touchstone of truth in public information is the Marshall Plan. What many people think they are observing is a process by which food is snatched off American tables for export and this raises prices. What is actually happening is that the bad corn crop and high American income are raising prices. Exports of dinner table items are relatively trifling. But unless more people are kept in touch with the actual record, supposed experience will teach a false lesson. Fictitious history distorts the learning process.

In the second place, economists have some obligation to build up their professional authority by showing their understanding. If our arts of forecasting were good enough, we might hope to do this by a series of dazzling triumphs in prediction. But we are still smarting from the effects of the "eight to ten million unemployed" fiasco of the demobilization period, and this path to professional authority does not look promising. Perhaps the main thing we can hope to do is to widen our contacts and persuade listeners that we are reasonable people.

This is partly a question of what our claim of professional authority asserts. To my mind, the economist should not claim to understand a lot of things that are too deep for the ordinary mortal. The facts and findings of economics can largely be understood by anybody who will give them sustained attention and seriously try to correct his biases. What we have to combat is largely the feeling of citizens (and perhaps of congressmen) that they have a natural right to understand economic questions offhand. We can properly claim that we have given these questions sustained attention and developed certain systematic safeguards against bias, and that nobody ought to make up his mind till he has looked into our view as to what the issues are.

In rethinking and presenting our contribution to economic stabilization policy, we need to find patterns of collaboration with other social scientists. So far, our work smacks too much of "making a better mousetrap and letting the world beat a path to our door." On the whole, our work does not find the market we hoped for. There is a disquieting possibility that the mouse to fit our mousetrap has not been invented. To get the proper grasp of the problems our counsel must be designed to meet, as I argued earlier in this paper, we need types of insight the economist's training does not produce. The economist has a lot to contribute to the division of labor, and the initiative must be his. But to give our fiscal policy counsel a maximum of relevance and usefulness, we will need help from our colleagues in the related social sciences.

DISCUSSION

J. K. **Galbraith**: Within the range of this discussion, there are two problems concerning the employment of monetary and fiscal controls. First, there is the matter of identifying the circumstances, present or future, that call for the use of controls. Second, there is the very important matter of what may be called "the will to act."

Of these two issues I judge the second to be of the greater practical importance. I should like to explore for a moment this question of the will to act. I doubt that it is purely a psychological problem—or a problem in political inertia. It is best understood, I believe, if we realize that there are not one but two problems of forecasting in connection with the timing and employment of fiscal and monetary controls. There is, as I have noted, the problem of forecasting or of identifying the condition that calls for their employment. To that question Mr. Hagen and Mr. Hart have given important and thoughtful attention. There is also the problem of forecasting the consequences of the controls employed. It is uncertainty in this area of forecasting which, I submit, has the greatest effect in paralyzing the will to act. Uncertainty as to the consequences of using monetary controls has, I am sure, been primarily responsible for failure to make greater use of them during the past year. There has been some agreement on the need for astringent monetary policies. There has been grave uncertainty as to what the effect of action would be—in particular as to whether the results of given action could be contained within reasonable limits.

It has long been recognized that the degree of predictability of effect varies with different controls—or, more precisely, by the number of variables in the economy that are embraced by the particular control. The degree of predictability is, of course, lowest for purely monetary control. These have nexus with only one of the variables controlling the level of employment (or the level of prices at full employment) and they make only incomplete contact with that. To put it another way, an action by the monetary authority, such as a change in the central bank rate or an alteration of the lending capacity of member banks, is communicated to the ultimates of employment and prices by an exceedingly loose-jointed chain of causation. The consequences of a given act are quite capable of being multiplied or nullified along the way.

Fiscal measures—that is, changes in taxation or in public expenditures—are clearly more predictable as to effect. The action of the fiscal authority, unlike that of a monetary authority, embraces a complete act of spending. We do not, and indeed cannot know, *ex ante,* the value of the multiplier in any given circumstances but, as a practical matter, this is not terribly important. We do know—as we cannot with monetary action—the broad limits of the effect. Knowing this it is possible to keep the action within the broad limits of safety.

The most predictable of all controls are neither the monetary nor fiscal measures but those that deal directly with ultimate effects. In contrast with the uncertainties that would today attend an effective alteration in the reserve requirements of member banks, no uncertainty would attend the fixing of prices of commodities coupled with rationing of the available supply. Even the political effect would be quite predictable.

I submit that the element of predictability—the coefficient of safety—needs to be given more prominence in our consideration of fiscal and monetary controls than it has had in the past. To the extent that predictability of effect is increased, I am sure the will to act will also be strengthened. Second, to the extent that controls must remain unpredictable in their effect, that unpredictability should be an independent factor in determining their usefulness. This is particularly so because there is negative correlation between the predictability of stabilizing controls and their elegance. Monetary controls, though unpredictable as to effect, are admittedly elegant in design and appearance. It is elegance which has earned them such a prominent place in the textbooks and in the affections of economists. It does not make them equally attractive to the policy maker who, quite properly, seeks to minimize the number of risky decisions he must make.

BENJAMIN H. HIGGINS: I find no major sins of commission in either of the main papers. I do find one grievous sin of omission: both papers omit to discuss the major economic and technical problems of timing and administering fiscal policy. They concentrate on problems of adult education, particularly the problem of coping with an economically illiterate legislature. With the points made in this connection I am in fundamental agreement. There is, however, one misapprehension of a more purely economic character which may have been left by the main papers, and which I should like to clear up; namely, the implication that on grounds of flexibility, and especially of "built-in flexibility," a variable tax policy is superior to a variable expenditure policy.

The flexibility of an employment policy has economic, legal and administrative, and technical aspects. The economic aspects consist of the rate at which income and employment can be varied with a given fiscal cost, in the absence of legal, administrative, or technical barriers. On economic grounds, public expenditures on goods and services (henceforth "public investment") are clearly more flexible than taxes or transfer payments, for the simple reason that variations in public investment affect income and employment in the same income period as that in which action is taken, while variable taxes and variable transfer payments affect income and employment only after a lag. Moreover, the marginal propensity to consume is likely to be higher for public investment than for taxes, since the great bulk of public investment goes into wage incomes, while a large share of almost any kind of taxes comes out of non-wage incomes. Transfer payments of the family allowance or unemployment insurance type also go mainly to wage incomes. Moreover, the relevant income-period itself will tend to be shorter for variable public investment than for variable taxes, since the average lag between receipt and re-spending of income is much shorter for wage incomes than for non-wage incomes. When all these factors are taken into account, it is apparent that on purely economic grounds, a policy of varying public investment would be more flexible than a policy of variable transfer payments, and a good deal more flexible than variable taxes. This argument, of course, holds *a fortiori* when unemployment is concentrated in particular industries or regions.

By the same token, reliance on variable tax rates and transfer payments for the achievement of a flexible employment policy will necessitate more accurate forecasting than a program which also includes variable public investment. To have expansionary (or deflationary) effects starting at the same time as would be produced by increases (or decreases) of public investment, the decision to reduce (or increase) taxes must be made at least one income period sooner. It should be noted also that the sort of built-in flexibility that is achieved with stable tax rates can be obtained in a public investment policy merely by assuring that public investment falls less than other components of national income. Automatic rules for variations in tax rates would be more effective, especially if coupled with automatically varying or even stable transfer payments. (In Canada such a policy exists in part through the family allowance program.) However, automatic rules for variable expenditures are just as easily formulated. No rule could be more simple than one requiring the government to take onto its pay roll any worker discharged by private enterprise. The truth of the proposal to achieve flexibility through tax policy alone is simply that if the budget is big enough, a substantial compensatory effect can be achieved by varying taxes while keeping expenditures stable.

The chief legal and administrative requirements for flexibility of any type of employment policy are two: there must be departments at all relevant levels of government with legal powers to take all necessary steps without delay, including powers to collect or spend funds; and these departments must be going concerns with efficient personnel. These requirements can be met for any type of policy; and the achievement of complete flexibility of any policy requires the concession of a wider range of independent decision to the executive branch of government.

More specifically, the requirements for a flexible tax policy are that the executive branch of government must have power to vary taxes, that channels must be established for giving notice of tax changes or issuing forms and instructions, and so forth; and that some inducements must be available to persuade state and local governments to integrate their tax policies with the federal policy. Requirements for a flexible public investment policy are a fully planned reserve of useful projects, power of the executive branch to subsidize the acceleration of federal, state, and local public investment programs, advance acquisition of sites or sweeping powers of condemnation, and reliance on government force-account work or advance letting of contracts with an "escalator clause." (It is careful advance planning, by the way, and not balanced budgets as Professor Hart suggests that prevents misallocation of resources through large-scale government expenditures. There is no worse misallocation of resources than unemployment.)

The technical barriers to a variable tax policy or a variable transfer payment consists mainly of paper work and are not of great import. The technical problems in a public investment program consist mainly of the engineering limitations on the speed with which projects can be started and finished. However, a program heavily weighted with state and local projects, which reach peak employment quickly and have an average duration of about six months, would involve no serious technical barriers to flexibility. Within two months of starting the expansion, some projects would mature each month. Within six months, some 15 to 20 per cent of the total program would mature each month. Consequently, the program as a whole could be rapidly contracted merely by failing to replace maturing projects with new ones. If large projects of long duration are launched in a downswing of private investment, they should be of a sort that has social priority so high that they should be completed as soon as possible, even under prosperity conditions.

Thus, on economic grounds, public investment is most flexible, transfer payments are next most flexible, and tax policy is least flexible. On legal and administrative grounds, all types of policy could be made equally flexible. On technical grounds, public investment presents the greatest problems, but these can be overcome without difficulty. True, there may be more political opposition to the measures needed to make public investment flexible than to the measures needed to make tax policy or transfer payment policy flexible. This possibility is not the concern of the economist as such. There is no denying the importance of integrating the social sciences, nor the usefulness of economists acquainting themselves with the findings of political science, sociology, and psychology; but the real job of the economist is still to reiterate what seems to be the best policy on purely economic grounds. If the economist allows political considerations to influence his recommendations, without making it perfectly clear to what extent his conclusions are based on rigorous economic analysis and to what extent on political hunches, he will do society a disservice.

WLADIMIR S. WOYTINSKY: The problem of timing fiscal policy cannot be divorced from that of its content. Promptness of action is highly desirable if the action is planned in the proper direction. A precipitous move in the wrong direction is worse than a delayed decision. The propensity of government economists to act promptly has been proved by the fact that as early as 1943 they started to plan public works as a means for mitigating mass unemployment after the war. More questionable is their ability to appraise the situation—to foresee the coming events and to recommend the proper measures at the proper time.

Sound fiscal measures cannot be taken before the agencies responsible for such measures have had enough time to arrive at sound conclusions about what should be done under the existing conditions.

The lag between economic events and decisions in fiscal policy is unavoidable: because of the time needed for the collection of information; because of possible contradictions in this information; because of limitations of our economic knowledge; because of interference of politics with scientific considerations; because of vested interests, prejudices, and outside pressures.

The last factor of delay is of paramount significance. It explains why government agencies are particularly slow in grasping the significance of new facts. The slowness of their mental adjustments, combined with promptness of action, is not apt to prevent fiscal policy from becoming a playball of politics.

The lag between economic developments and decisions on fiscal policy cannot be eliminated by automatic devices: fiscal measures affect the whole economic system indiscriminately, and their repercussions on specific sectors of the economy are unpredictable; specific economic difficulties cannot be mitigated by general measures, such as arbitrary changes in tax rates; unemployment does not always signal the need for inflationary measures; more-than-full employment does not always call for a deflationary policy; neither inflationary nor deflationary fiscal policy can be conditioned by any single symptom (such as volume of employment, unemployment, or production).

No decision on fiscal or economic policy can be based on the statement that unemployment has increased from two to four million. Before any decision is taken we must know whether unemployment is rising all over the country or if its rise is limited to certain regions and localities; whether the phenomenon is due to declining work opportunities or growing supply of labor; whether employment is declining in all fields of activity or in definite industries. The rise of unemployment may be due to the introduction of laborsaving devices in a particular group of farms; to slowing down of exports; to a strike in coal mines; to local disorganization of railroad traffic because of flood; to collapse of real estate speculation; to high wages and low profits; to high profits and low wages. There is no fiscal panacea which would meet all emergencies.

"Automatic devices" for determining fiscal policy are a poor substitute for brains. The propensity of government officials to decide on fiscal measures according to some rough and arbitrary automatic device justifies some doubts about the way in which they would use their discriminatory power in the field of fiscal policy. Indeed, it may happen that some measures would be taken after profound deliberations on their political implications but without any regard to economic realities.

The discussant agrees with the suggestion of Mr. Hagen that there is a great need to improve the economic education of businessmen, congressmen, and the public at large. He suggests provisions be made to expand advanced training in economics for government officials, particularly those engaged in economic forecasting and planning. Their record shows that economic research in government requires much improvement. Five measures seem to be necessary for improving both the timing and the content of fiscal policy: overhauling of economic services of the Executive Branch; insuring their independence from political influences; encouraging a sound competition of ideas on the research level within the government; release of opinions of economic experts under their names and their personal responsibility; eliminating monopolistic practices of those bureaus which tend to impose on other agencies their economic ideas, often of obscure or purely political origin.

Success in fiscal matters depends on clear thinking. The advantages of provisions facilitating quick moves are dubious. But there is a fair chance that proper measures will be taken by the Administration and Congress if their decisions rely on the concentrated efforts of the experts of both branches of the government, and if these experts are permitted to work under conditions which insure their independence and the free competition of ideas, with no other assignment than to find the truth.

O. H. **Brownlee**: In treating certain ailments of the economy with monetary-fiscal devices, the economist's position is not unlike that of the medicine man. He has a kit full of red pills with which he may reduce the patient's blood pressure. It is reasonable to expect that an inflation can always be stopped by appropriate monetary-fiscal action. He has another kit full of green pills which he may use to increase the patient's blood pressure. Although potentially less reliable in fighting depression than in fighting inflation, monetary-fiscal action is nevertheless an important weapon to be used against depression. Even though he may not always know exactly what is responsible for the inflation or the depression, the economist usually could reverse the undesirable upward movement in prices or downward movement in employment by giving the patient the proper pill.

Unfortunately, however, the medicine man cannot guarantee that if his patient takes a red pill he may not soon need a green one—that stopping an inflation may not result in a depression. Similarly, we cannot guarantee that stopping a depression will not result in an inflation. There is no mixture of red and green pills which we can administer to keep the patient's blood pressure exactly at a given level. By lowering the effective size of the multiplier the white pill that we call built-in flexibility may reduce the absolute values of movements in the equilibrium level of employment. And, under certain conditions, built-in flexibility may increase the degree of damping in the movements of certain relevant variables. While such a pill is useful, the medicine man cannot rely solely upon it to keep his patient from expiring. We probably will have to give first a dose of red pills, then two doses of green ones, another dose of red ones, a dose of green ones, and so forth in order to keep the movements of the relevant variables within desired limits.

Two classes of problems thus face the medicine man: when and how much of a pill to administer and how can the patient be induced to take the proper dosage at the time when it is needed. This second class of problems includes such difficult ones as how can the patient be given the pill without undergoing the usual full-blown Congressional action before he takes it. Unless the medicine man is permitted to take action—perhaps even to "slip" the patient a pill—or Congressional procedures for changing the course of monetary-fiscal policy are shortened, the usefulness of monetary-fiscal devices will be seriously impaired.

Convincing the patient that our prescriptions are reliable enough to keep the system functioning is a job of education or salesmanship for which every economist is responsible. In my estimation, this job has been made more difficult by the current tendency to oversell built-in flexibility—the white pills. No amount of such built-in flexibility can completely stabilize all of the relevant variables. And such amounts as might achieve a degree of stability which could be reached by appropriate changes in the monetary-fiscal structure might seriously impede achievement of other important objectives of economic policy. As was suggested by Hagen, the degree of initiative (the supplies of certain human resources) probably would be markedly reduced by the high marginal tax rates and marginal rates of compensation required by effective built-in flexibility. While built-in flexibility is useful, it is unfair to the patient to make him believe that built-in flexibility alone is sufficient.

Another device related to built-in flexibility and which also may be oversold is agreed-high-level budget balancing—Hart has called it the Ruml-ized balanced budget. Such a concept of budget balancing is a decided improvement over the notion that the federal budget should be balanced at all times. Nevertheless, the level of employment at which the budget should be balanced may need to be changed just as would the structure of the fiscal system—if a serious depression or inflation were to be avoided. The specified level of employment at which there should be a balanced budget hinges upon certain assumptions—conditional forecasts—relating to such variables as the money supply, the export surplus, and the public and private debt structure. These are essentially the same forecasts which must be made in deciding in advance whether to change tax rates or other aspects of the monetary-fiscal structure. While this is the least undesirable of balance formulae, no budget balancing formula can provide the degree of stability which could be provided if the restriction of a balanced budget were dropped.

Both Hagen and Hart have pointed out our inability to make forecasts accurate enough to commit us now to a definite set of fiscal actions for 1950 or even for 1949. Some evidence in support of their position is provided in the many erroneous forecasts which were made for the year following the end of the war. Even those whose predictions have been reasonably accurate in the past probably would not be willing to wager heavily upon the accuracy of a new set of predictions which they might formulate.

This does not mean that monetary-fiscal policy cannot be successfully used. It means only that committing ourselves to a particular monetary-fiscal structure for a long period in advance and expecting this structure to keep movements of the relevant variables within desired limits is unlikely to be successful, given the present stage of our knowledge. We cannot eliminate the necessity for forecasting. However, fiscal action can be based upon short-term forecasts which have a higher degree of reliability. And, at the same time, we can make everyone aware that even our short-term forecasts may turn out to be in error and that our policies may have to be reversed.

If we are thus far in agreement, our major suggestion for monetary-fiscal policy should be that the structure of our fiscal system be flexible. We should expect to change it frequently. And provisions for changing it must not be unduly time consuming.

When to initiate antidepression or anti-inflation action—i.e., when to change the monetary-fiscal structure—is, given the present state of knowledge, partially a problem in valuation. If we want to take action to prevent a bad situation, we must be guided by movements in certain predictors. These predictors are related to the relevant variables to be stabilized. As yet no set of predictors upon which we might get widespread agreement within the profession has been discovered. Action to prevent an unfavorable situation must be discretionary, since no agreed set of rules can yet be established.

Consequently, if changes in the monetary-fiscal structure must be according to rules—i.e., must be quasi-automatic—some fairly bad situations may have to arise before action is called for. The choice may thus lie between potentially smaller movements in the relevant variables together with discretionary action and larger movements in the relevant variables but with action according to rules.

As both Hart and Hagen have intimated, these rules may be rather crude in that they need be keyed only to movements in the variables to be stabilized. Hagen's hypothetical example of providing for changing income tax rates in accordance with the level of employment and Hart's suggestion for timing first bracket personal income tax rates (or social security contributions) by unemployment or price changes illustrate the kinds of rules which might be followed.

If we agree that discretionary action delegated by Congress to some administrative agency will not be sanctioned in the near future, our choices may lie among three of the procedures suggested by Hagen:

1. Automatic timing—automatic provisions for changing the monetary-fiscal structure. This would require a long-run forecast at the time the rules for automatic timing are set up, and does not appear very feasible. We are not yet prepared to offer to Congress a keyboard containing all of the buttons to be pushed together with exact directions as to when to push each button.
2. Congressional firing of an already loaded gun. Provided that the gun is not a single shooter, this appears to offer reasonable opportunities for stabilization. If, for example, changes in personal income tax rates could be included as ammunition, effective changes in the fiscal structure without undue time consumption could be the result.
3. Administrative action subject to Congressional veto. This is perhaps the most desirable of the three suggestions in that it provides for the speediest change in the course of action—provided that there is not frequent Congressional veto—a distinct possibility given the kind of political situation we now have.

Whether *when* to take action is discretionary or according to rules, the *kinds* of action to take can be specified in advance. Hagen has stressed the need for a succession of available measures, particularly in combating unemployment. Those changes should be made first which affect least the attainment of objectives of economic policy other than full employment or price stability.

For example, a cut in tax rates or exemptions might come at the top of the list. An increase in transfer payments might follow. An expansion in public works might follow the rise in transfer payments—if the first two measures were inadequate. This specification in the order of the succession of measures, placing priority on changes in the revenue side of the budget, incorporates the virtue of budget balancing stressed by Hart—the worth-whileness of government expenditures (particularly for resources) is placed in fairly bold relief.

TRANSPORTATION AND PUBLIC UTILITIES

RAILROAD TRAFFIC ASSOCIATIONS AND ANTITRUST LEGISLATION

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The contentious matter with which I shall have to deal in this paper includes some questions of fact and some questions of law and policy.

The principal question of fact is that raised in describing the operations of traffic associations. The difficulty is not, however, as serious as it might be, because we have, in this case, an unusual amount of official material developed over a considerable period of time. There are differences in characterization and interpretation, but a good deal of agreement upon what has actually taken place.

Railroad traffic associations and rate bureaus consider proposals for changes in rates, rules, and regulations and traffic practices submitted to them by railroads or shippers. Proposals are docketed and the dockets are made public. There is appeal from decisions reached. Subjects dealt with range from trivial cases to issues of considerable scope and importance. Problems of the latter sort have included the publication of rates over circuitous routes, the technique to be followed in reducing railroad rates to meet truck competition, and the establishment of joint rates between rail and motor carriers. Carriers also confer through their associations when they have to deal with orders of the Interstate Commerce Commission, such as those combining classifications or requiring large-scale adjustments of territorial rates, or when they study similar questions upon their own initiative.

Railroads insist that individual carriers are not bound by the decisions of traffic associations at any level, including in this statement resolutions or declarations of the Association of American Railroads. This assertion is supported by the wording of the various traffic agreements, in which the right of each company to take independent action is preserved. There seems to be no sufficient ground for questioning the legal right of members of traffic associations to exercise their own final judgment on matters of practice or policy which come before them, subject to the necessity of following a prescribed procedure which may involve delay. From the legal point of view, however, it is to be recalled that very similar reservations in the Trans-Missouri Freight Association agreement and in the Joint Traffic Association agreement some fifty years ago were held insufficient to protect the railroads from the impact of the Sherman law. The court then held that a company whose board of directors resolved to change rates against the wish of the pertinent association would risk a relentless war of competition against it on the part of the whole association. Times have changed, and there is no evidence, except perhaps in two cases presented by the Department of Justice, of any retaliatory action by members of a traffic association as a group in recent years against carriers with independent views. Nor is there any insuperable difficulty in withdrawing from the Association of American Railroads, as the action of the Chesapeake and Ohio has shown. Doubtless a railroad will not lightly cut rates in the face of resolute opposition by other carriers in an area, but this restraining influence would be present to some extent, even if no traffic agreement were in force. It would seem probable, also, that the influence of modern traffic organizations upon railroad rate making has been and now is due more to vigorous leadership, exercised for purposes of which carriers in general have approved, than upon fear of retaliation or the binding quality of codes. Yet this does not mean that this influence has been negligible. A realistic appraisal of the rate bureau institution will start with a contrary assumption, and will proceed from such a beginning to an analysis of problems of policy and of court review.

The statutes which may, and which the Department of Justice insists do, forbid practices common in traffic association experience are the antitrust laws. For the most part, this means the Sherman Act of 1890 and the Clayton Act of 1914, as amended. For some purposes the phrase "antitrust laws" may also include other statutes which incorporate the Sherman and Clayton Acts by reference, or which independently denounce combinations in restraint of trade.

Early decisions interpreting the Sherman Act are familiar to economists, and there is not time, here, to review in any detail even the course of recent litigation. Reference must be made specifically, however, to the case of *U.S.* vs. *Socony-Vacuum Oil Company,* 1940, because this case provoked the last major decision expounding the meaning of the Sherman law. The *Socony* case involved an agreement by producers to control "distress" selling in the oil industry. Disorganized conditions in the industry, resulting from overproduction, had reached an acute state in the oil business. The commodity specially named was gasoline. In 1933, it appeared that certain independent refiners would have a large volume of distress gasoline which they would be obliged to sell. The parties did not, as they had in an earlier instance, organize a single selling agency to meet the threat. But instead, the large oil companies arranged each to purchase, at fair market prices, the surplus which independent refiners were about to sell.

The Supreme Court refused, in the *Socony-Vacuum* case, to follow a suggestion in one of its earlier decisions, that an agreement for stabilizing purposes might be approved. On the contrary, and replying to the arguments of the defendant corporations, it held: (1) that a combination formed for the purpose and with the effect of raising or stabilizing prices was illegal per se; (2) that there might be effective control over a market, even though the power possessed fell far short of domination; (3) that the fact that buying programs may have been consistent with the general objectives and ends sought to be obtained under the National Industrial Recovery Act did not relieve the parties from the prohibitions of the Sherman law.

It follows from the last ruling of the Supreme Court that an agreement with reference to price is illegal under the Sherman Act. It is not important whether prices are raised or lowered or merely stabilized. The agreement is illegal even if it is not carried out. An arrangement which is designed to or which has an effect upon price is prohibited, in spite of the fact that it may produce results which statutes, other than the Sherman law, approve. While the *Socony* and other recent cases do not deal with carriers, and while it would be presumptuous to predict the opinion of the Supreme Court in pending litigation, the tendency of the Court to strict construction of antimonopoly legislation is very clear.

The legal argument against the continuance of present railroad traffic associations is uncomfortably strong from the point of view of those who believe in the usefulness of associations unless, at least, their current functions are considerably curtailed. If it should be believed that associations supply machinery, and perhaps the only practical machinery, for encouraging desirable co-operation between independent railroads, Congress should consider some alteration in the law. This brings us to a discussion of specialized legislation and to the regulative and economic aspects of the rate bureau problem.

The legislative history of traffic agreements goes back to the old pool. We may omit this part of the story. The next legislative action affecting traffic agreements was, of course, the passage of the Antitrust Act of 1890 and its application to traffic associations by the *Trans-Missouri Freight* and the *Joint Traffic Association* cases of 1897 and 1898. These cases, also, are well known. After the Supreme Court decision, complaint was filed alleging that the Official Classification Committee, equally with the condemned associations, was in violation of law, but the Attorney General refused to sue. In 1910, with the support of President Taft and substantial segments of the Republican and Progressive parties, a bill was introduced into Congress which, among other things, exempted railroad associations from the Sherman law in ways and under conditions which were defined. The clauses exempting associations provoked a long debate and were ultimately withdrawn in order, presumably, not to risk defeat of the legislation as a whole. In 1914, the bill which ultimately became the Clayton Act at one time contained provisions exempting associations of traffic, operating, accounting, and other officers from the Sherman Act, but these sections were stricken out.

The first time that traffic associations have been seriously attacked by the federal Department of Justice in recent years was in 1941, when the Trenton Potteries and the Socony-Vacuum Oil Company decisions suggested that modern arrangements might be more vulnerable than had been supposed. There were two occasions on which the government took action.

One development was during World War II. In March, 1942, the Attorney General, the Secretary of War, and the Secretary of the Navy recommended to the President that federal court investigations, prosecutions, and suits under the antitrust laws should be examined by the three departments and that the Attorney General should defer action in any particular matter when the three agreed that legal proceedings would interfere with all-out prosecution of the war. In cases of doubt, the President was to decide. This recommendation was approved by the President. It gave no immunity against ultimate indictment, but only freedom from the task of immediate defense.

Mere relief from the threat of immediate prosecution did not, however, meet the necessities of the case. Accordingly, in June, 1942, Congress inserted a section in the Small Business Act to the effect that the Chairman of the War Production Board might certify to the Attorney General that the doing of any act or thing or the omission to do any act or thing was requisite to the prosecution of the war. The Act further provided that the doing or omission of an act or thing so certified should be deemed in the public interest and that no prosecution or civil action should be commenced with reference thereto under the antitrust laws of the United States or the Federal Trade Commission Act. This went far beyond the agreement reached in March.

It does not appear that Section 12 of the Small Business Act was passed with railroad associations particularly in mind. Nor was it regarded by the Department of Justice as sufficient to protect these associations in rate cases. On the contrary, the Attorney General prepared to submit indictments against rate bureaus to a grand jury in Chicago, after the new statute had been passed, which attacked the entire method of rate conference as then organized.

According to Mr. Arnold, of the Department of Justice, competition was important in wartime. Competition in transportation was not only needed for national security in the future, but it was needed immediately to promote the nation's all-out war effort. And more specifically, and with reference to opposition by the Interstate Commerce Commission, Mr. Arnold wrote:

> The fundamental differences between this Division and the Commission is whether the Government shall preserve that measure of competition and independent action in the establishment of transportation rates which is not detrimental to the war effort, or whether the war emergency shall be the occasion for abolishing by administrative fiat all vestiges of independent competitive action in such rate making.

On the other hand Mr. Eastman, Director of Defense Transportation, said to a committee of Congress:

> I ask you whether you think that at a time when traffic is at a superpeak and the individual carriers, for the most part, have no difficulty in obtaining all the traffic they can handle, and more, there could be any competitive incentive for reducing rates, regardless of the rate bureaus?
>
> As a matter of fact, the only incentives for reducing rates under such conditions are, first, a patriotic desire to help the Government in the prosecution of the war and, second, Government control. If there is any need for remedy in this time of war, which I do not concede, plainly the remedy is not to depend upon competition but to make Government control more effective.

Secretary of War Stimson and Under Secretary of the Navy Forrestal agreed with Mr. Eastman rather than with Mr. Arnold in his attitude toward rate bureaus. The result of their protests was, first, that the Chicago grand jury adjourned without action upon railroad indictments and, second, that Mr. Nelson, Chairman of the War Production Board, issued a certificate under Section 12 of the Small Business Act. By this certificate, No. 44, Mr. Nelson specifically approved "joint action by common carriers or freight forwarders . . . through rate bureaus, rate conferences, or other similar carrier or forwarder organizations, in the initiation and establishment of rates, fares, and practices pertaining thereto," provided that such action should be taken in compliance with regulations formulated by the Interstate Commerce Commission. The certificate remained in force until October 1, 1946. The episode which culminated in the issue of the certificate was the first attempt of the Department of Justice to apply later Supreme Court decisions to traffic associations in the railroad field.

In June, 1944, the state of Georgia filed suit against some twenty railroad companies, alleging that these companies had employed rate bureaus, conferences, and other rate-fixing agencies to set rates which discriminated against shippers in the state of Georgia. Evidence submitted and briefs of counsel dealt at length with the operation and responsibilities of traffic associations. The Supreme Court held that the state was entitled to show, if it could, the violations of law charged in the complaint.[1] These proceedings are still pending.

The second initiative of the Department of Justice was not, however, the *Georgia* case, but the suit which the department brought, in

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[1] 324 U.S. 439, 1945.

August, 1944, at Lincoln, Nebraska, against the Association of American Railroads, the Western Association of Railroads, the Western Association of Railway Executives, certain bankers, and a long list of so-called "coconspirators" which included railroads in the southern and eastern states. The complaint charged defendants generally with combining in restraint of trade and with attempting to monopolize. It specified acts allegedly taken in pursuance of these unlawful purposes and asked for injunctions and orders of dissolution. The defense countered with a motion to dismiss, based on the contention that the organizations and actions mentioned were protected by Certificate No. 44 issued under Section 12 of the Small Business Act. It also addressed itself to the merits of the case. Briefs in this controversy, also, were filed, and evidence was taken. The motion to dismiss was denied. This suit is still before the District Court at Lincoln. It will ultimately reach the Supreme Court of the United States.

This brings us to a renewed attempt to protect traffic associations by legislative exemption. The first new proposal was embodied in S.942, submitted to the 78th Congress, on April 2, 1943, by Senator Wheeler. This bill died in committee. Mr. Bulwinkle, of North Carolina, introduced legislation in the House in May but this, too, failed to pass.

The task of legislation was resumed in 1945. Mr. Bulwinkle now introduced a bill which passed the House by a vote of 277 to 45. All but one of the Democratic votes cast were for the bill, and 161 out of 203 Republican votes. The proposed law was reported to the Senate and was there debated, but Congress adjourned before the Senate had acted. In January, 1947, Mr. Bulwinkle again laid a project before the House and Senator Reed followed with substantially the same bill in June. The Senate debated and approved the Reed plan by a vote of 60 to 27. Forty-three Republicans and 17 Democrats voted aye, and 3 Republicans and 24 Democrats no. Congress recessed before the House had discussed the legislation. Advocates of the bill hope that it will be passed when Congress reconvenes.

Summarizing the Reed-Bulwinkle bill in its latest form, we find that it authorizes the following action and grants the following powers:

1. Any common carrier subject to the Interstate Commerce Act and any freight forwarder may apply to the Interstate Commerce Commission for approval of an agreement with other carriers concerning rates, fares, charges, classifications, divisions, allowances, time schedules, routes, the interchange of facilities, the settlement of claims, the promotion of safety, or the promotion of adequacy, economy, or efficiency of operation or service, under such rules as the commission may prescribe.
2. The commission may approve the agreement and then later

modify or terminate its approval, specifying terms and conditions in either case, subject to certain qualifications and conditions:

a) The commission can approve agreements between carriers of different types, such as railroad and motor carriers, only when the agreement is limited to freight classification or to joint rates and through routes.

b) The commission cannot approve an agreement for pooling, division, consolidation, merger, purchase, lease, acquisition, or other transaction to which Section 5 of the Interstate Commerce Act is applicable.

c) The commission cannot approve an agreement unless each party thereto retains the right of independent action and unless the agreement, within a described territory, is open to all carriers of a given class.

3. Each approved conference, bureau, committee, or other organization established or continued pursuant to any agreement approved by the commission shall maintain records open to the commission and shall make reports to the commission.

4. Any person, including the Attorney General, may make complaint to the commission, alleging that carrier actions are contrary to the terms of an approved agreement.

5. No agreement approved by the commission and no conference or joint or concerted action pursuant thereto shall be deemed to be a contract, combination, conspiracy, or monopoly in restraint of trade or commerce within the meaning of the antitrust laws.

6. The commission's approval of an agreement shall not be construed as approval of action taken under an agreement. Rates, classifications, etc., that is to say, still must be submitted to the commission according to procedures established elsewhere in the Interstate Commerce Act.

7. The enactment of the section shall not deprive the Supreme Court of jurisdiction in the *Georgia* case.

The Reed-Bulwinkle bill and its predecessors, and the Georgia and Lincoln litigation and the cases which went before them, present two distinct points of view.

In general, opponents of pending legislation, and the Department of Justice in particular, assert that free competition between railroad companies is essential to protect the public interest. They believe that this free competition leads to lower rates and to more efficient service. In special cases, as in the South, they maintain that it will prevent improper sectional prejudice. These contestants declare that traffic associations restrain competition. They insist that Interstate Commerce Commission regulations are not and cannot be made sufficiently powerful, pervasive, or discriminatory to protect the public when competition is removed.

Supporters of current bills reply that traffic associations do not restrain competition. They think that a sanctioned plan for carrier conference has technical advantages in rate quotation and is highly useful in adjusting one rate to another. They conclude that Interstate Commerce Commission regulation is entirely adequate for purposes of control.

The discussion of these differences is not carried on in a friendly atmosphere of academic debate.

There are difficulties in dealing with a highly contentious matter of the sort outlined in the preceding paragraphs when the points at issue are under consideration both by Congress and by the courts. It seems necessary, however, to say something about these problems from an outside point of view.

Technically, rate bureaus or traffic associations are efficient devices for the consideration, determination, and publication of rate changes in which more than one railroad is interested. This is because they provide place, time, and established procedure for discussion. The advantages of these facilities to the carriers are obvious enough; but shippers also benefit, first, because notice of all changes is published before action is taken, second, because anyone who desires is given opportunity to be heard, and third, because any shipper may have a proposal of his own docketed and may appeal from a lower to a higher committee if the first decision is adverse. It is true that railroad conferences are not impartial judicial agencies, but neither would individual carriers be impartial if separately approached.

The Department of Justice criticizes the slowness of association procedure. There may, undoubtedly, be delay, and this delay may work to the disadvantage of the shipper when requests are made for rate reduction. Its extent depends upon the particular case. Noncontentious proposals seem to be promptly handled. Evidence from the Pennsylvania Railroad Company, covering the months of April, May, and June, 1942, shows that 47 per cent of the proposals which that carrier submitted to conference were disposed of within fifteen days. Perhaps proposals of shippers were not so quickly examined. And contentious matters may drag along. Obviously the publication of notice of a suggested change, the period afforded shippers to request a hearing, the consideration of a plan by a rate committee of an association, the processes of appeal and, when it occurs, the declaration of intention to take independent action, take time. In some cases, notably those dealing with transcontinental rates, a final adverse decision upon a proposed rate may be delayed a year or more. Undoubtedly the procedure of traffic associations is cumbrous. On the other hand, it cannot be assumed that a shipper who attempted to secure a rate change that required the co-operation of or affected the interests of several railroads would obtain quick disposition. Nor should it be forgotten that proposals to make alterations in a tariff structure deserve careful preliminary consideration. Rate stability has its merits as well as rapidity of change.

The balance of advantage from the point of view of procedure is on the side of joint rather than of individual examination of suggestions for modification of existing railroad charges. The effect of joint consideration upon rates is more difficult to appraise.

The Department of Justice and opponents of the Reed-Bulwinkle bills in Congress argue that the antitrust laws should not be amended in the interest of effective utilization of rate bureaus, because such bureaus or conferences eliminate competition. This is an overstatement which should be obvious to anyone familiar with the efforts of rail traffic officers to attract business from each other or to any observer who is acquainted with the structure of railroad tariffs. There is some reason to expect, however, that traffic associations may modify the intensity of interrailroad rate rivalries. Individual railroads are not bound by decisions of traffic associations; they do accept most of them. This alone is not proof of restraint; partly because requests for rate changes initiated by shippers and denied by associations frequently contemplate reductions which railroads would individually refuse, and partly because independent rate cutting, with or without an association, is expensive when it starts a fight. It is evident, however, that early knowledge of what its competitors will do is an advantage to any company in setting price, and that a chance for friendly argument is not to be despised. This is oligopoly and, in the extreme case, it has a flavor of monopoly control. Carriers emphasize the lack of authority of rate bureaus. The public has always believed, however, that while traffic associations need not keep rates high, the policy and tendency of rate bureaus is to raise railroad rates or to slacken the speed of their decline. It is very likely that, in this opinion, the public has been right.

An outside observer would be inclined to believe that rail traffic associations do, somewhat, limit interrailroad competition, although this competition is by no means entirely destroyed. This is not, however, the entire story.

It is a useful function of a traffic association, for one thing, to generalize rate changes when they occur so as to minimize distortions and diversions of traffic. Mr. Eastman has properly remarked that when there is more than one route between two points, the rates must ordinarily be the same by all routes. In the case of rates from widely separated origins to a common market, a change in one rate may impel a change in all. An alteration in the rate basis on one commodity between certain points may even force changes in the rates on other commodities between different points. Related action in many cases actually promotes competition in the sense that it makes it possible for shippers to utilize several lines instead of only one.

It is also possible to maintain that some limitation of competition is appropriate in a regulated industry, provided that the limitation makes for economy and that the over-all earnings of the industry are not unreasonably high. Both of these conditions are probably fulfilled in railroading. With respect to earnings it is common knowledge that rail carriers are subject to compelling pressure from water and motor transport and that the profits which railroads make, as well as the details of their pricing system, are under strict regulatory control. It would be difficult to show that railroad earnings during recent years have been, as a whole, exorbitant, unless, indeed, one were prepared to write off a major portion of rail investment because of technological changes since the end of the first World War. With respect to economy, we have abundant government authority for the proposition that some restriction in railroad competition is justifiable in the public interest in order to avoid waste and to prevent the carriage of some commodities or classes of commodities at prices which do not cover cost. The Department of Justice seems committed to a theory of atomistic competition which does not recognize these or many other similar questions which arise. Its view differs from that held by the Interstate Commerce Commission to a degree which has led the head of the Office of Defense Transportation to characterize the department's activity as a direct attack upon the principles of regulation.

This brings us to the matter of the efficiency of regulation. It is essential to the position of the Department of Justice that the Interstate Commerce Commission cannot secure, in the public interest, a satisfactory level or a proper adjustment of railroad rates. And it is necessary for those who hold a contrary opinion to believe that railroad regulation is at least reasonably efficient, if co-ordinated and associated rail pricing is to be allowed.

The Department of Justice gives three general reasons to justify an adverse conclusion in these matters.

One of these reasons is that, by necessity, the Interstate Commerce Commission can review only a negligible proportion of the rates which are filed with it in any year. This point was given publicity by testimony of Mr. Barnes, consulting economist to the Department of Justice. Mr. Barnes said that 99 per cent of the rate changes filed with the commission became effective without investigation by government authority. The inference was obvious. In specific criticism of this estimate Mr. Aitchison, Chairman of the Interstate Commerce Commission, replied that in the period covered by the Barnes statement, 14 per cent of the new rates filed came to the commission in response to its order in a single case, and that 40 per cent, instead of 1 per cent, either received the direct approval of the commission, or were filed in response to the commission's mandate, or received administrative consideration in the commission after investigation. It may be added that a large proportion of new tariffs are of a purely routine character, involving such matters as the extension of expiration dates and the republication of tariffs when supplements have become too numerous. Any reasonable familiarity with commission decisions will supply evidence of the far-reaching effect of the commission's rulings upon rates which are fixed in conformity with rates which are imposed, and so do not need separate examination. These facts, and Mr. Aitchison's testimony, should dispose of the particular argument to which this paragraph refers.

Another reason, mentioned in the *Georgia* case, is that there is a zone of reasonableness in rate determination, and that the commission can only fix the limits of this zone. Hence the conclusion that the commission will not and cannot fix rates at as low a level as that which competition would compel. Since the Supreme Court has made this statement, it is the law. It should be observed, however, that the concept of "zone reasonableness," as described, has no support in logic or in economics, but only in the uncertainties of the judicial mind, and that rates approved by the commission may always be required to be the precise rates which the railroads charge. Yet it is true that private interest supplies an incentive to price reduction when the earnings from successful competitive enterprise are allowed to remain in private hands. A scheme of regulation must take this fact into account and balance it against other characteristics of the regulatory plan.

Finally, the Interstate Commerce Commission is criticized either because specified decisions are said to have been bad or because its activities, especially if the Reed-Bulwinkle bill is approved, would trespass upon fields which should be occupied by the courts. Questions of prestige are introduced. This last tendency is marked since the preliminary decision in the *Georgia* case.

On the whole there is little evidence that the Department of Justice has impressed public opinion by its criticisms. On the contrary, public reaction rather supports than opposes the Reed-Bulwinkle bill and, by inference, the technique of present railroad regulatory control. Doubtless most people know little and care less about the problem. Yet a list has been submitted to Congress which includes nearly a thousand names of organizations of one kind or another represented in Washington during the 79th and 80th Congresses or in whose behalf there has been testimony favoring an amendment to the law. Among these are the National Industrial Traffic League, which is the most important shipper's group, the National Grange, and other farm organizations, the Intercoastal Steamship Freight Association, and a large number of state and city chambers of commerce. Still more significant are the thirty-one public utility commissions, along with the National Association of Railroad and Public Utility Commissions, the Office of Defense Transportation, the Interstate Commerce Commission, and some state legislatures, not including that of the state of Georgia, which have endorsed recent bills. While some persons will sign anything, and while the parties mentioned are not committed to particular clauses of proposals which have been altered at different times, this aggregation cannot easily be brushed aside.

The fact is that the regulatory machinery which controls public business in the United States is up in arms. It would appear, also, that shippers definitely wish to have present provisions for intercarrier consultation continued, on the assumption that methods will be improved. Shippers do not object on principle to carrier efforts to raise some rates and to eliminate some services which entail unusual costs; they are willing to operate under and to make a case before the Interstate Commerce Commission when railroads, in their opinion, fail to satisfy their needs.

We must not exaggerate. Rail traffic associations of a sort will doubtless continue, even if the Reed-Bulwinkle bills do not pass and the Supreme Court adheres to a strict construction of the antitrust laws. If we were to list the activities which would be permissible with strict construction and without special legislation, we should probably find that they would include at least rate publication, simplification of tariffs, technical consideration of rate handling routine, and, possibly, discussions between carriers looking toward the establishment of through rates. They would, doubtless, also include conferences designed to remodel rate structures in conformity with commission orders. Possibly the courts would permit more than this—we cannot say. There are things, however, which carriers probably would not be able to continue doing through associations unless the Reed-Bulwinkle bill were passed. If we are to believe counsel who have been active in litigation on the government side, they would not be allowed to confer on changes in rates which applied on the lines only of a single carrier. It is argued that each railroad should exercise its own managerial discretion in such matters, even though a change of rates upon a single line might disturb existing relationships and ultimately affect rail charges over a broad area of transport. Similarly, while two carriers might discuss with each other the establishment of a joint rate in which these two would participate, it is said that the discussion would or should be limited to the railroads actually participating in the traffic movements to which the joint rate would be proposed to apply. This again would eliminate prior consideration by carriers who would be interested. It is hard to see why companies which operate a direct route between stations A and B should have more concern in a proposed through rate than would companies operating a convergent route from C to B; the distinction is, however, strongly made. In general, it seems clear that carriers would not be allowed to initiate changes in rate relationships, through conference, that raised questions of discrimination not determined by the Interstate Commerce Commission. Nor could they safely survey the rates and practices of American railroads with a view to correcting charges which were unusually or unreasonably low on a comparative basis and from the point of view of railroads as a whole, or practices which were unreasonably expensive. Such remedial action could be taken only by individual carriers or through investigation and order of the regulatory authority. And, of course, associations would not be permitted to assist railroads in formulating common policies which would be followed in dealing with carriers of other types. An illustration of this is the circumstance that conference between rail and water carriers in connection with the fixing of transcontinental rates has already required special clearance by the Attorney General. They would not be able, that is to say, to organize the railroads as an industry, in traffic matters, with respect to internal structure and outside relations.

There is much that is arguable in the foregoing. Yet it is not unreasonable, it seems to the writer, to believe that railroad associations do, on the whole, encourage constructive consideration of the larger problems of the railroad industry and that regulatory control is sufficient, in these days, to protect the public from abuse. And the writer has earlier remarked that associations are extremely useful from the technical point of view. If these simple conclusions are correct, rate bureaus should be continued. Railroads would not stop running if the functions of traffic associations were greatly reduced, but their efficiency might be impaired.

UTILITY RATE CONTROL RECONSIDERED IN THE LIGHT OF THE *HOPE NATURAL GAS* CASE

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I. *Introduction*

The passage of four more days will bring us to the fourth anniversary of one of the most important economic pronouncements in the history of American law. On January 3, 1944, the Supreme Court, speaking through Justice Douglas in the *Hope Natural Gas* case,[1] renounced, at least with respect to public utilities, the majestic title once conferred upon it by the late Professor John R. Commons—the title of "The Authoritative Faculty of Political Economy for the United States." Unless the Court again reverses itself, no longer will it impose upon legislatures or commissions, state and federal, the severe restrictions upon their power to fix rates that it had previously imposed under its doctrine in *Smyth* vs. *Ames*.[2] The rule of "reasonable return on fair value" may still be retained by states that choose to retain it. But it has ceased to be the "law of the land."

What, if any, constitutional standards of reasonable rates still remain as a safeguard to utility investors is open to question. Some writers believe that the Supreme Court has reverted completely to its early position in *Munn* vs. *Illinois*,[3] where it limited the application of the "due process" clause of the Fourteenth Amendment to procedural rather than substantive due process. Though supported by several minority opinions, this view reflects a bold prophecy as to what the Court will do in the future rather than a cold interpretation of what it has done or said down to date.[4] But even a cautious reader of the recent cases can hardly escape the conviction that the Court has shifted to other shoulders the primary responsibility for developing standards of reasonable utility rates.

The *Hope* case therefore creates for economists, as well as for public service commissions, a timely occasion to reappraise their own standards of rate making, devoid of any bias in favor of legal traditions. In drafting an outline for such appraisal, we may well observe the familiar, textbook distinction between standards of reasonable rate levels, and standards of reasonable rate schedules or rate patterns.

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[1] *Federal Power Commission* vs. *Hope Natural Gas Co.*, 320 U. S. 591 (1944).

[2] 169 U.S. 466 (1898).

[3] 94 U.S. 113 (1877).

[4] In *Market Street Ry. Co.* vs. *Railroad Commission of California*, 324 U.S. 548 (1945), the Court, though upholding a rate order challenged on constitutional grounds, did not deny the *relevance* of the company's complaint that the order was "confiscatory."

But even in that part of our study confined to rate levels, we may usefully distinguish between two types of criteria of reasonableness: between those criteria that test the reasonableness of the rates by direct reference to the adequacy of the income or profits which they can be made to yield; and those other criteria that deny any close relationship between reasonable rates of charge to consumers and specified rates of return to investors.

From the standpoint of economic theory, the second group of rate standards—the group which partly or wholly divorces reasonable rates of charge from reasonable rates of profit—is of more intriguing interest than is the first group. It embraces a variety of otherwise unrelated rate-making standards. Among them one may list: (1) the proposals by Hadley, Cabot, and others to abandon governmental rate control in reliance on the competition of substitute products or services; (2) the use of rates charged by publicly-owned plants as "yardsticks" for private performance; and (3) the policy of marginal-cost pricing advocated by the modern "welfare economists" even as applied under conditions requiring a public subsidy.

A fourth suggested study in this general field would be an analysis of the several noncost or nonprofit criteria of reasonable rates expressed or implied in the various amendments to the Interstate Commerce Act. Fifth and finally, there is the dissenting opinion of Justice Jackson in the *Hope Gas* case, urging the abandonment of any criterion of reasonable return with respect to the production division (as distinct from the transmission division) of the natural gas business. Even Justice Douglas, though not in accord with Justice Jackson on this issue, quoted with approval a former statement by Chief Justice Stone which seems to imply the possibility of situations under which the right of consumers to receive public utility service at reasonable rates may require a commission to deny to investors the opportunity of securing an adequate return on their capital.[5]

Despite the importance of these various possible noncost or nonprofit standards of reasonable rates, I mention them here merely by way of recognizing the limited scope of the present paper. For in this paper I shall assume, as did Justice Douglas for the purpose of deciding the *Hope* case, that "reasonable" rates are rates that will yield an adequate return to a well-managed company. This assumption will permit us to center attention on the remaining question—the question, namely, what standard of an adequate return should take the place of the now discredited rule of "reasonable return on fair value."

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[5] 320 U.S. 591, 603, where Justice Douglas quotes in part the following statement in *Federal Power Commission* vs. *Natural Gas Pipeline Co.*, 315 U.S. 575 at 590 (1942): "But regulation does not insure that the business shall produce net revenues, nor does the Constitution require that the losses of the business in one year shall be restored from future earnings by the device of capitalizing the losses and adding them to the rate base on which a fair return and depreciation allowance is to be earned." Compare the ambiguous statement in *Smyth* vs. *Ames* indicating that a public utility company may not charge rates higher "than the services rendered by it are reasonably worth." 169 U.S. 466, 547. The ambiguity lies in the failure of the Court to define "reasonable worth."

II. *Ability to Attract Capital as the Test Emphasized in the Hope Case*

For a fresh approach to the question just raised we may again take our cue from the *Hope* case. Here the Federal Power Commission had used, as the test of a reasonable return, its version of the "prudent investment" principle. The Supreme Court upheld the rate order. But in so doing it declined to espouse the prudent investment principle as its own ground for a decision. On the contrary, it indicated that, as long as the rates fixed by a commission comply with certain basic standards of fairness, the method used in arriving at these rates, including the possible choice of a rate base, is not subject to judicial review. The words used by Justice Douglas in setting forth these underlying standards of fairness are not free from ambiguity,[6] a fact to which Justice Jackson drew sharp attention in his dissenting opinion. But Justice Douglas placed much emphasis on his conclusion that the commission's rate order, though imposing a marked reduction in earning power, would still leave the company with earnings adequate to enable it to continue in successful operation, to maintain its credit, and to attract new capital. The last of these three attributes embraces, by implication, the other two.

Without implying that the criterion of a return necessary to attract capital has now become the Supreme Court's single standard of reasonable rate levels,[7] I propose to examine this standard critically in order to see how far its acceptance would carry us in arriving at a sound policy of rate control. Two questions, both of which are suggested by the majority and minority opinions in the *Hope* case, will receive special attention: first, the question what, if any, method or formula must be used by a commission as a measure of the earnings necessary to attract capital; and, secondly, the question whether a limitation of earnings to a capital-attracting minimum will comply with other standards of fair rate-making policy.

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[6] "Rates which enable the company to operate successfully, to maintain its financial integrity, to attract capital, and to compensate its investors for the risks assumed, certainly cannot be condemned as invalid, even though they might produce only a meager return on the so-called 'fair value' rate base." 320 U.S. 591.

[7] But this implication has been drawn by some commentators who are impressed by the failure of the Court to express its other standards (such as that of "financial integrity" or of compensation to investors "for the risks assumed") in such a way as to permit of objective measurement. See, for example, Hillyer Brown's highly critical article on "The Ghosts of the Hope Natural Gas Decision," 32 Calif. Law Rev., 398-415 (1944). In *Market Street Ry.* vs. *Railroad Commission,* 324 U.S. 548 (1945), Justice Jackson, who here spoke for the Court, commented as follows on the *Hope* case: "All that was held was that a company could not complain if the return which was allowed made it possible for the company to operate successfully." However, Justice Douglas' opinion in the *Hope* case does not seem to me to bear out this narrow interpretation of his standard of reasonable rates.

III. *Capital Attraction Standard in the Hope Case Distinguished from Capital-Attracting Rate of Return Under Smyth* vs. *Ames*

In this analysis of the capital-attraction standard of rate control, we must note an important distinction between the standard as applied in the *Hope* case and a related test of fair rates previously applied by the Supreme Court under the doctrine in *Smyth* vs. *Ames*. Even in these earlier cases, the Court had held that a well-managed utility company is entitled to earnings sufficient to "maintain and support its credit and enable it to raise the money necessary for the proper discharge of its public duties."[8] This financial test of adequate earnings was applied, however, only to the determination of the "reasonable rate of return." The rate base, on the other hand, was to be measured by an utterly different yardstick. Here the Constitution was held to impose "fair value" as the measure, not because of the practical exigencies of corporation finance, but rather because of a specious analogy of the law of rate making to the law of eminent domain.

This union of a pragmatic rate of return with a dogmatic "fair value" gave birth to a queer hybrid, devoid of functional significance. Only by a rare coincidence would the resulting allowance of an annual return correspond to the earning power needed by a company in order to maintain credit and float new securities. The only thing that saved this illogical procedure from becoming a serious deterrent to capital formation in the utility industries was the adoption of equally illogical measures of "fair value"—measures resulting chronically in the allowance of opportunities to earn excessive profits.[9]

A quite different application of the capital-attraction test of reasonable utility rates is implied in the *Hope* case. Here the Federal Power Commission had ordered reduced rates designed to yield a return of $2,191,314 per annum. This was an allowance of 6.5 per cent on a rate base of $33,712,526. The Court held that the return of over $2,000,000 was sufficient to maintain corporate credit and to enable the company to raise capital. But in so doing, it did not pass separate judgment on the validity of either of the two arithmetic components—the rate of return or the rate base. Instead, Justice Douglas seems to have deemed the return adequate for capital-raising purposes by relating it to the amount and type of outstanding securities rather than by relating it to the rate base.[10] Such a position is in accord with the facts of corporation finance—a point to be stressed in a later section of this paper.

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[8] *Bluefield Water Works & Improvement Co.* vs. *Pub. Serv. Comm.*, 262 U.S. 679, 692-695 (1922). This leading case also states that "a public utility is entitled to such rates as will permit it to earn a return on the value of the property . . . equal to that generally being made at the same time and in the same general part of the country on investments in other business undertakings which are attended by corresponding risks and uncertainties." How this criterion of reasonable profits can be reconciled with the other, capital-attraction test, is a question that the Court has never settled. For an able review of court and commission decisions on rate of return during the twenties and early thirties, see E. M. Bernstein, *Public Utility Rate Making and the Price Level* (Chapel Hill, North Carolina, 1937), chs. 8-10.

[9] The illogical combination of a rate of return deemed necessary to maintain corporate credit with a "fair value" rate base unrelated to the company's capital structure may have resulted from a confusion in the minds of the justices between (a) a rate of return on new capital, the anticipation of which will induce investors to supply this capital, and (b) an amount of annual return on present capital sufficient to empower a company to float new securities on terms favorable to it.

If the precedent of the *Hope* case may be taken to supersede the precedents of the earlier decisions by the Supreme Court, no longer need a commission purport to decide what rate of return will enable a company to secure capital without reference to the investment base against which this rate is to be applied. Not only the present amount of the rate base but also the conditions of its future increase or decrease must be taken into account before one can reach a rational conclusion that 5 per cent or 6 per cent or any other rate of return will give a company the power to finance its capital requirements.

IV. *Further Comments on the Nature of the Capital-Attraction Standard*

As used in this paper, the capital-attraction standard of rate control refers to the attempt by commissions to fix such utility rates as will yield a well-managed company a return or profit sufficient to enable it to attract capital. But the standard must be defined more closely in order to remove ambiguities and to make it sufficiently clear-cut for practical use.

In the first place, both the rates of charge and the rates of profit must be the minimum required for the assumed purpose; otherwise the test is indeterminate.[11] To be sure, wise rate-making policy may justify the public acceptance of rates of charge yielding more than this required return; but such a policy invokes standards of regulation (such as the objective of encouragement to efficiency) other than the single standard now under review.

In the second place, the return directly at issue in a rate case is the prophesied future return, as estimated by the commission, not the realized return nor even such a return as may be anticipated by investors. When a commission fixes or approves rate schedules designed to yield, say, a 6 per cent return on a given rate base, it makes no commitment that its estimate of future earnings under the new rates will turn out to be correct. Investors may therefore discount this estimate and may anticipate a return of, say, 4 per cent on the one hand or of 8 per cent on the other hand from a rate order which the commission itself defends on the assumption of 6 per cent. This possible discrepancy between returns assumed by commissions and returns anticipated by investors adds to the difficulty of fixing rate schedules designed to yield enough earnings to attract capital.[12]

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[10] But this is an inference as to Justice Douglas' position rather than a report of any express statement by him to this effect. In summarizing the company's past financial history, the Justice presented the record of earnings and of dividends in terms of percentages of invested capital and of par values.

[11] Even this restatement merely reduces the indeterminacy of the standard, for there is always a range of uncertainty as to where the required minimum lies. In allowing for a "reasonable rate of return," commissions usually purport to resolve in the company's favor any serious doubts as to adequacy.

In the third place, the return allowed for in a rate case is the return to be received by the corporation on capital already contributed,[13] whereas the capital-attracting return is the return anticipated by new investors on these new investments. To be sure, because of the character of corporation finance, these two things are related. But the relationship is both indirect and indefinite. Hence, there is no simple way of deriving the earning power that the company must have in order to attract more capital from an estimate of the return, the anticipation of which would induce people to supply this capital. As will be noted later, this difficulty reveals a serious limitation of the standard of profits or earnings necessary to attract capital, when offered as a direct basis of rate control.

In the fourth place, "return necessary to attract capital" must mean a return, the allowance of which will enable a company to secure capital in the amounts, at the times, and for the purposes required in the public interest. In making tentative estimates of reasonable profits, we may assume that the allowance by a commission of a 6 per cent rate of return on all capital, old and new, would secure any desired inflow of funds, whereas the allowance of 5.5 per cent would secure no funds whatever. But this assumption of an inelastic supply price of capital is too crude for application to a utility which must do a formidable amount of new financing.[14] In current rate cases, commissions recognize this point by admitting testimony on a company's program of future construction as bearing on the allowance of a "reasonable" rate of return. What use the commissions actually make of such testimony is rarely explained in their written opinions.[15]

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[12] This difficulty can be minimized, though at the expense of other objectives of regulation, by a policy under which excesses or deficiencies in realized rates of return may become the basis for offsetting readjustments in later rate cases. The principle of the *Galveston* case, which declines to make past losses an element in the determination of future returns, is of doubtful application to losses for which the regulating commission itself is responsible. *Galveston Elec. Co.* vs. *City of Galveston,* 258 U.S. 388 (1922).

In estimating earnings derivable from proposed reduced rates, commissions often decline to make any allowance for the promotional effect of the reduction in stimulating an increased demand for the service. On the other hand, some commissions are reluctant to grant rate increases until the need for the increase has become critical.

[13] In setting a rate base, commissions will sometimes include an allowance for the cost of property which, while planned for in the near future, has not yet been installed and devoted to the public service. Seldom, however, does this allowance constitute more than a minor fraction of the total rate base.

V. *Ability of Company to Attract Capital Distinguished from Willingness to Do So*

In most of the legal cases that invoke the capital-attraction criterion of rate control, the problem before a court or commission is viewed as that of determining the amount or rate of profits, the enjoyment of which will enable the company to raise new capital. Here, however, lies one of the serious limitations of the standard of regulation now under review, for the mere ability of a company to finance desirable extensions or improvements of service is no guaranty that this ability will be exercised. The directors of corporations, even of public service corporations, are deemed to be in a position of trust toward their stockholders; and they may refrain from authorizing any proposed program of plant construction unless, in their opinion, the additional net revenues to be derived therefrom will exceed the added burden of interest or dividends that would be imposed by the issuance of new securities.[16]

The practical importance of this distinction between the ability and the willingness of a company to raise capital is that a policy of rate making designed to meet the first objective may fail to meet the second. What motivates a private management to seek new capital is the anticipation that such action will result in a gain to the old stockholders.[17] Such a gain must be sought in the difference between the income available to these stockholders in the absence of the proposed new financing and the higher income that can be anticipated if the financing is accomplished. On the other hand, what gives a company the ability to attract new capital, if it so chooses, is its entire earning power as related to its capital structure.

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[14] A puzzling problem of economic theory is that of determining the social need for any proposed addition to public utility plant. Clearly, the traditional businessman's test of profitability to the private utility company is inconclusive. The difficulty of supplying a satisfactory alternative test is enhanced by the fact that the public need for additional plant capacity will depend in part on future rates of charge for the service—a problem that may be soluble, on paper, by simultaneous equations. For a discussion of the criterion as to what public utility investments are socially worth while, written from the standpoint of current "welfare economics," see Harold Hotelling, "The General Welfare in Relation to Problems of Taxation and of Railway and Utility Rates," *Econometrica,* July, 1938, pp. 242-269.

[15] The terms on which new money can be attracted by any given utility company depend, in part, on the current and anticipated demands for capital by the entire utility industry. For example, the present market for utility securities is said to be adversely affected by the announcement of the electric power industry that it will require five billion dollars of gross plant additions during the next five years.

[16] Often, indeed, the proposed financing must be approved, not only by a resolution of the directors, but also by a vote of the stockholders.

[17] The fact that the management may have other objectives than that of representing their stockholders is ignored here for the sake of simplicity.

It follows that the return which will induce a company to raise new capital is not the total allowed or realized return on its rate base, but rather the differential return that it may hope to enjoy only if it gets the capital and devotes it to the public service. This means that a regulatory policy of permitting a company to earn unduly liberal profits on present capital, so far from stimulating the making of improvements or extensions, may actually have the reverse tendency. While, up to a certain point, the high current profits will improve the corporation's credit and hence its ability to finance on favorable terms, it may also destroy the incentive to do this financing by reducing the opportunity to raise the income still higher.[18]

The problem of devising schemes of rate regulation that will induce and not merely enable private utility companies to make new capital investment is complicated by the legal powers of legislatures, commissions, and courts to compel the performance, by railroads and other utilities, of the obligations of public service imposed upon them by their franchises. In stimulating utilities to furnish adequate supplies of capital, regulation relies, therefore, on a combination of inducement and coercion. But no definite rules of law or of administration predetermine the relative use made of these two forces. Even rate regulation itself may use both of these forces, by conceding attractive profits to companies that maintain adequate and efficient plants and by denying even "normal" profits to companies that fail to meet their construction requirements.

VI. *The Role of Internal Financing as Affecting the Need to Attract Outside Capital*

For many years, both local public utilities and railroads have financed the major part of their capital requirements by the reinvestment of revenues rather than by resort to the outside capital market.[19] This fact is now well known; but its full significance for the theory of rate regulation remains to be adequately explored. The traditional discussion of profits necessary to attract capital pays but little attention to internal financing. Indeed, "capital attraction" is hardly an apt description of the financial practice to which Stuart Chase referred when he asserted that "American business rolls its own."[20]

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[18] The reputed current difficulty of the electric power industry in doing an adequate amount of equity financing may well be attributable, with respect to some companies, to excessive profits currently earned on stock already outstanding. The difficulty faced by these companies is not in issuing new stock at any price, or even at book value, but rather in issuing the stock at a price high enough to support the market quotations on the old stock and to permit the maintenance of the current rate of dividends. In consequence, the liberal profits made today may positively discourage the investment of equity capital.

The surprisingly large amounts of capital improvements made by the railroads (chiefly through internal financing) during their prolonged period of subnormal returns on capital investment may be explained on this "differential income" theory of financial incentive. While total returns on "sunk" capital have been very low, the differential returns anticipated (and, possibly, actually realized) on the outlay for improvements may have been liberal. One must remember that, from the standpoint of investment motivation, an improvement that can be expected to save total corporate income, however low, from falling still lower, is a "profitable" improvement.

Two major forms of internal financing are distinguished by the textbooks: first and most important, the reinvestment of earnings currently credited to depreciation and other reserves; and, second, the reinvestment of net income remaining after the payment of dividends. These sources of funds are available only to a company with adequate earnings. But the tests of adequacy here are quite different from the tests of a "reasonable return."

In the first place, the return that will attract outside capital is an estimated future return, whereas the corporate earnings available for reinvestment in the properties are earnings actually realized in cash. In the second place, the depreciation allowance is not counted as a part of the return on capital. Instead it is an operating deduction. Hence, a company reporting no net income might still have large revenues that could be invested in plant or in working capital. On the other hand, the net income available for reinvestment is only such a fraction of the total return on capital (net operating revenue plus "other income") as remains after the payment of fixed charges and after the distribution of whatever dividends the directors may feel constrained to pay.

The determination of proper allowances for depreciation is a subject beyond the scope of this paper. One must note, however, the important bearing of this subject on the allowance of a "reasonable return." To the extent that plant replacements or improvements are financed by the reinvestment of earnings associated with depreciation accrual, the burden faced by a company in attracting outside capital is lightened. A lower rate of return may therefore be adequate.

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[19] During the nine-year period, 1937-46, the electrical utilities reduced their outstanding securities (long-term debt plus stock at stated value) by over 1¼ billion dollars, while making additions to plant including more than eight million kilowatts of increased generating capacity together with service installations for almost six million new customers. A total of 3½ billion dollars, secured chiefly from earnings earmarked for credit to the depreciation and amortization accounts, with the balance coming from a reinvestment of net income, was invested in property additions and replacements or was used to retire outstanding securities. *The Financial Record of the Electric Utility Industry, 1937-1946* (Federal Power Commission), pp. 1-6.

An estimate of funds made available for capital purposes for the steam railroads (Class I and their lessor companies) during the period, 1921-39, indicates that almost 75 per cent of these funds, or nearly 8 billion dollars, came from income. Four billion dollars of such funds represented depreciation and retirement allowances charged to income. Of the remaining 25 per cent of funds, about 9 per cent was attributable to decreases in working capital and about 16 per cent to the sale of securities—mostly to increases in funded debt. Testimony of J. W. Barriger, III, now President of Monon Railway, before the Temporary National Economic Committee (Hearings, pt. 9, p. 3562 ff.), brought down to 1939 by tables furnished by Mr. Barriger to the present writer.

[20] "Capital Not Wanted—American Business Rolls Its Own," *Harper's Magazine*, February, 1940, pp. 225-235.

In explaining their allowance of a "reasonable" rate of return—typically from 5 to 7 per cent—commissions sometimes state that it will leave the company with an adequate balance of net income for reinvestment after the payment of current rates of dividend. But the making of a rational allowance for retainable net income, as a component of the permitted rate of return, is rendered almost impossible by the absence of any accepted standard as to the percentage of net income that should and will be retained.[21] Those commissions that attempt to relate the "reasonable" return to a company's actual financial structure will sometimes apply to the rate base an over-all rate of return found sufficient to cover interest and preferred-dividend requirements plus whatever earnings on the common stock are deemed sufficient to maintain the market value of the stock at or above book value.[22] In applying this formula, the commission makes no assumption as to the company's dividend policy.

There is one type of case in which a commission may wisely bring pressure upon a company to reinvest the major part of its net income. This is the case of a company which, either because of an unsound financial structure or because of unavoidably low earning power, finds it impossible to raise equity capital by outside financing. Unless its state of affairs is bad enough to require bankruptcy reorganization, it should be induced or compelled to "firm up" its equity by cutting dividends, or even by passing them altogether. To be sure, this action may cause a drop in the market price of the stock; but, in any event, the stock is temporarily useless as an instrument of finance.

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[21] There is the further difficulty of making a proper allowance for net income which, if reinvested, will presumably entitle the company to a higher rate base at a later time, thereby increasing subsequent claims for dividends. Utility spokesmen sometimes deny that reinvested net income should be counted as a part of the compensation of stockholders, since the resulting credits to surplus are often partly or completely offset by various debits to surplus not cleared through the income account. This is tantamount to a contention that accepted accounting conventions result, typically, in an overstatement of net income. A study of utility financial statements during the past two decades would lend much support to this view. It would also indicate that much—perhaps most—of the "erosion of surplus" has been due to readjustments necessary to offset the accounting inflation and the inept depreciation policies of the twenties. Private utility companies cannot afford the luxury of comparable mistakes in the future.

[22] This is the so-called "cost of capital" method of estimating a reasonable rate of return on an original-cost or "prudent investment" rate base. The expert staff of the Federal Power Commission has been perhaps its leading exponent. Earnings-price ratios both for the very stock in question and for stocks of comparable companies, are used as a means of estimating what earnings per share will make the stock worth its book value. Reported book value itself is revised to correspond to rate-base value. In the fixation of electrical rates for compound utility companies, or for companies with an unsound capitalization, the formula can be applied only in a qualified way. Moreover, the results of the formula are offered merely as a guide to a "judgment" determination of the rate of return, which will probably be set at a more liberal figure.

VII. *Criterion of Return Necessary to Attract Capital Fails to Measure Fair Return on Capital Already Attracted*

Let us turn now to a serious limitation of the "capital attraction" criterion of rate control. The difficulty is that an allowance of an earning power that will enable a utility company to raise more capital under its present financial structure may be either more or less than the allowance required in fairness to existing investors. The capital of these investors has already been committed irretrievably. Only, therefore, by rare coincidence are returns to which they are fairly entitled derivable simply and directly from a computation of the minimum income that the company must enjoy in order to gain or retain the power to do continuous new financing.[23]

The problem raised here would not be so troublesome if American regulation of private utility companies had followed a practice like that used in the financing of public enterprise by the issuance of revenue bonds. Here the maximum returns to which investors are entitled are predetermined by the contracts under which the bonds are issued; and these contracts contain provisions designed to assure the investor that charges to consumers will be made adequate to yield the required income. Somewhat similar arrangements have even been applied, by charter provision or otherwise, to a few private companies, such as the Consumers Gas Company of Toronto. These companies are entitled to charge such rates, if possible, as will enable them to pay fixed rates of dividend on their common stock.

In such cases, the problem of rate control becomes a problem of fixing rates that will make good the prior commitments to investors; and this is done by reference to actual interest or dividend requirements rather than by reference to any "rate base" in the conventional sense of that term.

Traditional American utility regulation, however, is not of the above-stated character. Instead, it involves the ex post facto determination of a "fair return" on capital already contributed in the absence of any definite public commitments as to how this return shall be measured. The "fair value" doctrine, even in its heyday, was too vague in its implications and too difficult of enforcement to prevent investment in utility equities from being anything but a risky speculation. Today the problem of arriving at a "fair" return on old investment is a problem of the retroactive application of new standards of rate control. But the problem will become less critical if these new standards are applied in the future with reasonable consistency.

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[23] Commissions sometimes assume that companies are entitled to earn on their old investments whatever (anticipated) rate of return would suffice, under current market conditions, to attract new investment. But this assumption is not acceptable without qualification where the old investments were made under market conditions, and under conditions of risk, far different from those prevailing today. Justice Brandeis, the greatest exponent of the "prudent investment" principle, did not regard the allowance of a "current-market" rate of return as consistent with this principle. *Southwestern Bell Telephone Co.* vs. *Public Serv. Comm. of Missouri,* 262 U.S. 276.

The *Hope* case itself well illustrates the failure of the capital-attraction criterion to solve problems of fair treatment of existing investors. Here the company was so conservatively capitalized (its only security issue was common stock, fortified by a heavy earned surplus) that it could probably have continued in successful operation and have raised large quantities of new capital even if the Federal Power Commission had allowed it a 6.5 per cent return on a rate base of only half the amount which was actually allowed. Not only could it have issued senior securities; it might even have been able to issue more common stock by setting the offering prices low enough to offer an attractive prospective yield to new investors.[24] But had the commission taken this action as being in accord with the assumed criterion of rates necessary to attract capital, it would have penalized the company for its extremely sound and conservative financial structure.

In marked contrast with the situation in the *Hope* case is the problem of rate control raised by an overcapitalized company with a top-heavy debt structure.[25] As long as the unsound financial structure remains outstanding, such a company may be unable to do an adequate amount of new financing unless, perhaps, it is permitted to earn an excessive rate of return on actual capital investment. Otherwise, the priority rights of the old security holders may prevent the company from selling new securities.

Faced with such situations, commissions have been charged with a tendency to concede to the financially mismanaged company more generous rate schedules than they would concede to a company with a sound capital structure. If such a tendency exists, it is deplorable. Instead of tempering the wind to the shorn lamb, a commission should bring every legitimate pressure upon an overcapitalized company to undergo voluntary or involuntary reorganization. Pressures of this kind may include the allowance of a deliberately substandard rate of return as a penalty for inadequate service, together with a refusal to approve new bond issues, and combined with an insistence that the company raise in other ways whatever new capital may be required to perform its obligations of public service. Such a policy would probably soon compel a reorganization. The compulsion may be made more effective under a public service law giving to a commission discretionary control over corporate dividends. Finally, there is the possible precedent of the Federal Holding Company Act of 1935, which empowers the Securities and Exchange Commission to enforce a reorganization of even a solvent company when its existing financial structure fails to meet certain statutory standards of adequacy.

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[24] If necessary, the par value of the stock could have been reduced by charter amendment so as to avoid the legal objections to the issuance of stock at less than par.

[25] An essentially similar problem is raised in the regulation of the electric rates of a company also supplying other services, such as manufactured gas and steam heat. If the nonelectric business cannot be made to carry its share of the burden of supplying the company with adequate earnings, the commission is under pressure to sanction excessive electric rates, thereby causing the consumers of electric service to subsidize the other services.

I conclude this section of my paper by restating that the question, what return (or what rate of return) a company may need in order to attract new capital, is only indirectly related to the further question, what return may fairly be claimed on capital already invested.

VIII. *The Capital-Attraction Objective Requires a Definite and Consistently Applied Method or Formula of Rate Control*

Relying on the supposed precedent of the *Hope Natural Gas* decision, which declined to impose upon a regulating commission any one method for the determination of reasonable rates, one state commission has itself undertaken to dispense with any formula in arriving at the "reasonable earnings" for which it makes allowance in its rate order. I refer of course to the Wisconsin Public Service Commission, which, in the *Two Rivers Telephone* case[26] fixed rates "intended to allow this utility a profit of approximately $12,500 on its annual operations." So far, its action was orthodox, in that it identified "reasonable" rates with rates sufficient to yield a stipulated "adequate" return or profit.[27] But the novelty of the case lay in the refusal of the commission to defend or explain its allowance of $12,500 by reference to any method or formula. The "prudent investment" test was expressly renounced, as was that of a given rate of return on any kind of a rate base. Nor was there any disclosed attempt to relate the allowed-for income to the company's interest and dividend requirements.[28]

It is true that the commission, in its opinion, talked about the need to "take into account" various criteria of reasonable rates, such as the need to allow for efficiency of management and the desire to prescribe rates that are "fair and reasonable in view of the rights and interest of both the utility and its customers." But it would require the power of clairvoyance to find out, from the opinion, how the commission arrived at the definite sum of $12,500 from the various "considerations" which it purported to "take into account." Clearly, I think, the commission relied on what Professor Glaeser has called "the trance method" of deciding a rate case.

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[26] *City of Two Rivers* vs. *Commonwealth Telephone Co.*, decided July 31, 1947. The rationale of this case was foretold in an article written by the Commission's Chief Counsel. Herbert T. Ferguson, "Why is a Rate Base?" 40 *Public Utilities Fortnightly* 811-817 (July 19, 1947). The commission's order was reversed in December, 1947, by the Circuit Court of Dane County, Wisconsin.

[27] In a subsequent case permitting the Wisconsin Telephone Co. to raise its rates, the Wisconsin Commission made certain estimates of the future income derivable over a five-year period from the permitted rate increase of $6,400,000 per year. Here, too, the allowable net income was not derived by the application of any given rate of return to any accepted rate base. The commission, moreover, qualified its grant of $6,400,000 additional gross revenues by warning that it would not authorize any rate schedules in excess of the "value of the service" or in excess of an amount found necessary to produce reasonable profits on the particular local exchange that supplies the service. Application of Wisconsin Telephone Co. for Authority to Increase Rates, decided September 18, 1947.

[28] The *Two Rivers* case involved merely the rate schedules for one local exchange of a larger company. Hence the allowed-for profits from this branch of the business could not have been based directly on the company's interest and dividend requirements.

So far as concerns rate regulation designed among other things to attract capital, this policy of fixing rates without benefit of any published method or formula is critically defective. It ignores the fact that what attracts new capital is not just the returns that may be earned in the immediate future but rather the returns that investors may anticipate receiving on their investments year after year. Consequently, no commission can find that a return of $12,500 or of any amount will attract capital save by reference to some method that will continue to be applied in later rate cases. But in the *Two Rivers* case, investors have been left in the dark on this point, unless perhaps they have been told of the commission's real policies of rate making by communications other than those taking the form of a public record.

What has just been said is not meant to imply that public utility rates should be set by exclusive reference to the problem of attracting new capital. Indeed, the Wisconsin Commission was on sound ground when it based its chief objection to the unqualified application of a "fair return" criterion on its belief that "too little incentive to economy in plant construction or to efficiency in operation results from rates thus arrived at."[29]

But in failing to explain how it reached its $12,500 allowance of a "reasonable return," the commission failed to suit its action to its words. For the opinion is silent on the question whether the commission found the management efficient or inefficient. Indeed, there is no indication as to whether the commission took any account of the "efficiency factor" in setting the company's rate schedules. This omission must be almost fatal to the effectiveness of regulation designed to stimulate efficient management. Such regulation depends for its success on an attempt to make stockholders pleasantly or painfully aware of the performance of their managers.

Here, again, is another illustration of the vanity of any attempt by commissions to regulate utility rates without benefit of a fairly definite method or formula, applied with reasonable consistency. The wise decision of the Supreme Court to refrain from imposing upon regulating commissions its own formula of rate making does not mean that the commissions themselves can dispense with any formula as a general guide. The Court, in the *Hope* case, was throwing upon commissions the primary responsibility for developing methods by which to measure reasonable rates.

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[29] The *Two Rivers* case, *supra.*

IX. *Method Best Designed to Attract Capital Is Method Minimizing the Speculative Character of Utility Securities*

It is beyond the scope of this paper to review the different methods of rate control which, alone or in combination, would permit and encourage the attraction of capital. Any of several methods might serve this purpose, since each of them has offsetting advantages and disadvantages from the standpoint of a holder of utility securities. I think it a fair generalization that, judged solely by the test of ability to induce capital investment on terms most favorable to consumers, the most effective method of regulation is that which puts a premium on security of money return even at the expense of denying to investors speculative chances of windfall profits. While this generalization is not based on any axiom of investment theory, it derives support from the overwhelming importance of institutional investors in the market for utility securities. From the standpoint of the public interest, however, a program of rate making that would receive the highest rating under the capital-attraction test would probably impose upon consumers the necessity of paying rates that, under some conditions of operation or in times of business depression, would be unreasonable when judged by other tests.[80] The art of developing good standards of rate control must be an art of compromise among various objectives that unfortunately are partly inconsistent with each other.

X. *Change in Rate Base in Response to Changing Price Levels Not Necessary to Attract Capital*

To one aspect of the problem of encouraging the attraction of capital I must give brief attention because of its interest in these days of price inflation. Some writers argue that, quite without reference to any legal compulsion of the "fair value" doctrine, commissions must allow an increase in the rate base (or in the rate of return) corresponding to any major increases in price levels that have occurred since the date of the original capital investments.[31] No adequate support for this view has been supplied by those who express it.

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[80] The most serious problem raised by the attempt to reconcile the objective of safe utility investments with other objectives of rate making is the problem of deciding in what manner and to what extent inadequate returns realized in past years may be made good by offsetting high earnings in future years. One critical aspect of this problem is that of adapting rate levels to changes in the business cycle. If during periods of depression companies may not be permitted to charge rates that will yield a "normal" return, or perhaps any return whatever, they must be given some compensating opportunity to earn during prosperity profits that would otherwise be more than enough to attract capital. By and large, they have actually received such an opportunity in the past, although some courts and commissions ignored this fact during the depression of the thirties.

The asserted necessity of conceding higher money returns on capital invested in days of lower prices is based on the assumption that in a period of rising prices people will not invest unless they are offered some safeguard against further inflation. Such an assumption is clearly belied with respect to purchasers of utility bonds and preferred stocks. If valid at all, it applies solely to common stock equities. Yet common stock is the means of financing only a minor fraction of the capital requirements of utility companies.[32]

As long as the capital structure of utilities is composed so largely of senior securities, with fixed rates of interest and dividends, it would be absurd to make changes in the entire rate base, corresponding to changes in price levels or in construction costs, as a means of attracting new capital on favorable terms to consumers.

As an experiment in utility regulation, some arrangement for changing the permitted rate of dividends on common stock, in fixed relation to changes in a specified price index (perhaps a cost-of-living index), might be well worth trying. I question, however, whether such flexibility in dividend rates is required in the interest of utility stock flotation. Unless I am seriously mistaken, the chief deterrent to investment in utility equities, at the present time, is not the failure of these equities to offer an inflation hedge but rather the fears of the investment market that present dividend rates cannot be maintained in the face of rising operating costs—especially not if the total amount of outstanding stock is to be greatly increased. In other words, the problem of making utility equities attractive to investors is the problem of assuring stable money dividends rather than the problem of maintaining so-called "real" income.

XI. *Rate of Return Allowed on New Capital Should Depend on Type of Security Issued in Order to Secure This Capital*

I have only one more point to make before closing this review of rate regulation from the standpoint of the objective of capital attraction: In my opinion, the unsound tendency of utility companies to finance so largely by the issuance of senior securities, and with only a thin common-stock equity, could be greatly reduced by action of regulating commissions changing their allowances of a "reasonable" rate of return. Under orthodox practice, this rate is usually fixed at some percentage, say, 6 per cent, not directly related to actual interest and dividend requirements. In consequence, companies plan their new financing on the assumption that they can earn an additional 6 per cent even on new capital raised by the issuance of bonds yielding less than 3 per cent, or by preferred stock yielding, say, 4.5 per cent. Under these circumstances it is small wonder that utility managers, acting in the interest of old stockholders, are relucant to do any equity financing. They may say that they cannot issue new common stock on terms "fair" to present stockholders. What they really mean, I suspect, is that they can make more profits for these stockholders by issuing 3 per cent bonds in exchange for capital promising a 6 per cent return.

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[31] See *Public Utilities Fortnightly*, January 3, 1946, at page 46, citing a statement by John E. Benton, counsel for the National Association of Railroad and Utility Commissioners, that "severe inflation" will not only warrant but require either a higher rate base or a higher rate of return. Mr. Benton is quoted as preferring an adjustment in the rate base.

[32] See Ernest R. Abrams, "Utilities Need Buyers for New Common," *Barron's*, October 27, 1947, page 7, discussing the means by which the electrical industry hopes to finance its requirements for five billion dollars of gross capital addition. Chief reliance will be on "depreciation financing" plus creditor instruments.

This situation calls for a change in the rules of regulation. Commissions should allow more liberal rates of return on capital raised by the issuance of common stock than they would allow on the same capital if raised by the issuance of bonds or preferred stock. Such a policy would probably impose upon consumers no higher total capital costs than they are called upon to pay under prevailing methods of regulation. But even if these capital costs were somewhat higher, due to a reduced reliance on senior securities, the public would gain greatly from the sounder and more flexible capital structure of its utility companies.[33]

XII. *Conclusions*

I close this paper by listing the following conclusions as a basis for possible discussion:

1. A major objective of regulation is to control rates without impairing the ability of a well-managed company to raise capital on favorable terms. But this is not the only objective; and it cannot serve as the sole test of reasonable rate levels.

2. Regulation must be designed to induce and not merely to enable private companies to make the optimum capital replacements and improvements. To this end, companies should be allowed to enjoy adequate differential returns on new capital investments. But the returns

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[33] One investment banker, testifying for a utility company in a recent rate case, has expressed the opinion that 100 per cent common stock financing is not only the soundest form of utility financing but is as economical (in terms of dividend requirements) as is the traditional stock-and-bond financing (in terms of requirements of interest *plus* dividends). This latter contention is not supported by such limited data on costs of utility financing as have come to my attention.

The premium placed on debt financing by the federal corporate income tax is thoroughly vicious. A revision of the tax system is called for.

DISCUSSION

Ralph L. Dewey: The problem of how to control railroad traffic associations and rate bureaus, while by no means new, is currently receiving widespread public discussion. As Professor Daggett says in his paper: "The public has always believed . . . [that] the policy and tendency of rate bureaus is to raise rates or to slacken the speed of their decline. It is very likely that, in this opinion, the public has been right." Since the regulation of railroad rates is considered to be a matter of prime public interest, it is not surprising that those who believe that the rates developed through traffic association procedures are inimical to their welfare or harmful to the general welfare should seek to change the *status quo*.

Led by the Department of Justice and strongly supported by the Southern Governors' Conference and others, there is a sizable movement afoot to institute the desired reforms by subjecting the agreements and actions of the traffic associations to the jurisdiction of the antitrust laws. Other individuals and groups, both private and public, are opposed to this policy, and wish to continue the present system without significant modification. In these circumstances, leaders of public opinion have not been able to make a final choice between the Scylla of monopoly and the Charybdis of competition. The sound of battle is heard as proponents of the various points of view meet on the forum and in the courts.

All of this is made abundantly clear by Daggett, who has presented the facts in his usual thorough style. Members of the Association will appreciate especially the information about the procedures of the rate bureaus and traffic associations. Their activities have been shrouded in considerable mystery, at least to a large segment of the public, and it is well to have this light thrown upon them. The review of legislation, actual and proposed, and court decisions refreshes our memories and brings us up to date on recent developments.

However, I do not propose to spend the major portion of the space at my disposal on these factual and legal matters. It is probably futile anyway to speculate on the lines of action that Congress and the courts will eventually adopt in the matter of the antitrust laws and traffic associations. At any rate, I take it that our task here lies in a different direction. Leaving to one side the question of whether Mr. Arnold or Mr. Eastman was right about public policy towards rate bureaus during the war—a question which has little importance now—I shall direct my remarks largely to the discussion included in the final quarter of the manuscript.

It seems to me that as economists we need to consider two basic questions in regard to antitrust legislation and traffic associations. First, are the railroads a decreasing cost industry, i.e., a natural monopoly, or are they competitive in nature? Second, if they are a natural monopoly, does the monopolistic device of a traffic association, under government regulation, serve or harm the general public? Daggett's contribution should be evaluated primarily in terms of his treatment of these questions.

As to the first question, the railroads have long been recognized as a classic example of a natural monopoly. The hallmark of monopoly is the power to charge discriminatory prices or, in this field, discriminatory rates. Rail examples are the elaborate classification of freight, the simpler though effective classification of passengers, and the multitude of departures from distance scales in freight rates. Discriminations are possible only when buyers (shippers or travelers) can be divided into groups which in actuality constitute different markets. This grouping or classification, in the case of freight, is comparatively easy, first, because it is impossible to change one commodity into another for the purpose of obtaining a lower rate, and, second, because a freight rate which applies between two points is not available to shippers between other points. While it is more difficult to classify passengers than commodities for rate-making purposes, the railroads have been successful in splitting up the market by inducing "rich and snobbish buyers to divide themselves from poorer buyers."[1] Differences in cost do not alone explain differences between parlor car and coach fares.

The basic characteristics of railroads which make them a natural monopoly have also been generally recognized. The large-scale carrier is in a position to benefit from both internal and external economies which are not available to the smaller company. However trite this may sound to economists, the point appears to have been overlooked by those who would attempt to treat the railroads as a truly competitive industry.

I believe that Daggett would agree substantially with this statement. Parenthetically, I observe that there appears to be some confusion in his mind about the distinction between monopoly and oligopoly. He says, for instance, apropos of the work of traffic associations, "It is evident . . . that early knowledge of what its competitors will do is an advantage to any company in setting price, and that a chance for friendly argument is not to be despised. This is oligopoly. . . ." Patently this is not oligopoly but a monopolistic practice, since the theory of oligopoly does not admit of collusion or agreement between individual firms on matters of price or output. However, I do not wish to allow this technical point to obscure the agreement between Daggett and myself on the vital question of the monopolistic nature of railroads.

Consider what would likely happen if the antitrust laws were rigorously enforced against the traffic associations. While they would probably survive and continue to carry on such functions as the courts would permit, an all-out attempt to restore competition would undoubtedly stimulate a tighter form of integration; viz., the merger or consolidation. A repetition of the rail history following the traffic association decisions near the turn of the century, when combinations were created at an accelerated rate, could reasonably be expected to occur. Such a development would tend to increase, not lessen, the very monopoly features which the Department of Justice finds objectionable in traffic associations.

We may now consider the second question, which is, does the monopolistic device of traffic associations, under regulation, serve or harm the general public? On the whole, Daggett's verdict is favorable to the railroads in this regard. He says that traffic associations, by limiting competition, "generalize rate changes" and secure considerable "rate stability." He also infers that traffic associations have not led to exorbitant over-all earnings or waste and inefficiency in the rail field. The arguments of the Department of Justice as to the alleged inefficiency of the Interstate Commerce Commission in respect to the regulation of rate levels and relationships fail to impress the author. Nor does he accept the view that traffic associations can be justifiably condemned on economic or business grounds. It is evident that he is not in sympathy with the moves to apply the antitrust laws to traffic associations and rate bureaus.

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[1] Joan Robinson, *The Economics of Imperfect Competition,* p. 181.

While there is room for honest differences of opinion about these judgments, I believe that Daggett has reached conclusions that are both consistent and correct. The real issue today is not monopoly versus competition; it is a practical matter of insuring that traffic associations, under government regulation, shall serve the public interest.

Although I have expressed general concurrence with the author's main conclusions, I regret that he has not given more attention to economic analysis. It would have been helpful, too, if the paper had contained more concrete evidence of the specific manner in which traffic associations promote the public welfare. From his rich background of experience and research, Daggett could undoubtedly have supplied numerous examples. I regret, also, that the paper lacks a discussion of ways and means of improving the performance of traffic associations and rate bureaus. Like most institutions, they are not perfect; they need the spur of constructive criticism by thinkers of Daggett's stature if they are to do a better job.

HORACE M. GRAY: Professor Bonbright has demonstrated that, financial structures and practices being as they are, the much publicized "attraction of capital" theory for the determination of rates of return on public utility properties is a frail reed on which to base public regulation of utility rates. Under existing conditions, it can at best yield only limited results, and its general application may impose on consumers unjustifiable burdens. As an alternative, he suggests differentiated rates of return as between old and new capital, and as between bond and stock financing. This method, if legally approvable and intelligently administered, would, in my judgment, constitute a great improvement over present practice. Thus I find myself in general agreement with Professor Bonbright up to this point. But I am concerned with some larger aspects of the question, which go quite beyond the circumscribed financial framework within which Professor Bonbright sets his analysis, and I desire to sketch briefly a few bold strokes on this broader canvas.

One of the crucial problems of our time is how to secure adequate capital investment under monopolistic conditions. This problem is not peculiar to the public utility industries; it emerges wherever expanding social needs confront the stubborn reality of private monopoly. In a dynamic society, characterized by rapid technological and social change, social needs exert continuous pressure on the existing capital supply. To meet these insistent demands new increments of savings must be withheld from the income stream and invested quickly in appropriate capital forms. Experience has demonstrated that this vital social process of saving and investment cannot operate smoothly or effectively in an economy dominated by private monopoly, for monopoly creates road-blocks to new investment as part of its general strategy of restricting production in order to maximize profits.

The public utility industries are a special case in point. They operate on this same general principle of restricting new investment; the only difference in practice is that public utilities, having a tighter monopoly, can apply this principle more rigorously than can industrial monopolies. Many examples can be cited from the history of the public utility industries. Witness the deplorable obsolescence of our railroads, the physical inadequacies of private water systems, the decrepit condition of municipal transport, the failure of the electric utilities to provide service to rural areas, the limited extent of hydroelectric development, the enormous waste of natural gas from lack of transportation facilities, the failure of the tele-communication companies to exploit new and improved technologies. The record discloses a chronic state of underinvestment—failure to extend service, to improve the quality of service, to introduce improved technology. If these industries were to be completely modernized, on a scale consistent with social needs and in terms of the best available technology, billions of dollars of new capital would be required.

Historically, rates of return have had little direct influence on the basic investment decisions of private management; these decisions have been based primarily on calculations of maximum profit under given circumstances. In case after case, where liberal returns have been allowed and where specific provision has been made for an increment of income "to attract capital," no significant inflow of capital has resulted. Realized net income has either been paid out in dividends or capitalized; it has not served as a basis for securing new capital because it has been to the interests of private monopolists to limit production in order to maintain existing levels of profit. Over a sustained period of time this policy has resulted in the increasing inadequacy and technical obsolescence of capital facilities in the utility industries. There is no convincing evidence that private management is disposed to abandon its historic attitude of restriction. This being the case, rates of return designed "to attract capital" will be no more effective in the future than in the past.

Commissions, courts, and, I regret to add, many economists specializing in public utilities appear to have overlooked this basic element in the psychology of monopolists. As a consequence, when dealing with the permissive rate of return they have fatuously assumed that the addition of some increment of return would "attract capital." This increment would serve as a premium, an inducement, a price, the function of which would be to stimulate new investment. This supposition is obviously a transference from the accepted body of competitive economic theory, in which an increase in price is assumed to call up new supply. But it has been made without regard to the difference in circumstances—specifically, the presence of monopoly. The monopolist merely sticks the incremental income in his pocket; to him it is a mere gratuity—a treasure trove.

He does not, in return for this added income, expand investment beyond the limits of his maximum profit calculation. Thus, in practice, the incremental income allowed for "attraction of capital" is functionless—a subsidy without any corresponding social obligation. Government grants this subsidy to the owners of public utilities, compels consumers to pay it or forego service, but makes no provision whatever to compel the recipients to perform their part of the social contract. This situation will persist so long as we continue to separate the price-fixing and investment functions: government setting prices for service, but monopolists making investment decisions in their own private interest.

This last observation brings me to the conclusion that we should unify these two basic functions: government should take from private management the power to make investment decisions; these decisions should be made and enforced by public authority. Such a system of public control would obviously do away with the present foolish and ineffective practice of attempting to bribe private monopolists to do what, by the very nature of their situation, they are committed not to do; that is, of offering them an inducement to commit "monopolistic suicide." It would yield the positive gain of actually directing new capital into the utility industries in the amounts required to meet modern social needs. Furthermore, this new capital could be secured at minimum cost because it would no longer be encumbered with such artificial increments as "attraction of capital" and risks incident to private management.

Whether or not this reform could be accomplished short of public ownership is problematical. There is, I think, a chance that it might. Private management, in the last half century, has surrendered many of its former prerogatives to the state without ceasing to function and without ceasing to be private. Perhaps it could give over the investment function without complete abdication. If such a division of labor could be evolved, private management might well confine its activities to ministerial, or administrative, functions, leaving to government responsibility for the planning and financing of capital facilities, and for the determination of rate policy. At any rate, the problem is a crucial one and must be solved if social needs are to be met. I am convinced that it cannot be solved by any "attraction of capital" device, however ingenious, which leaves in the hands of private monopolists the vital function of making investment decisions.

THE FUTILITY OF TRUST-BUSTING[1]

By JOHN ISE
University of Kansas

One hundred and seventy years ago Adam Smith made his well-known statement: "People of the same trade seldom meet together, even for merriment or diversion, but the conversation ends in a conspiracy against the public, or in some contrivance to raise prices"; and this notorious reflection on business ideals has since that time remained a blot on the fair name of business. We must, of course, consider the mitigating circumstances attending the declaration. In the first place, it was made before businessmen had been refined and ennobled by courses in business ethics, and propped up on the leaning side by the restrictions of New Deal agencies. In the second place, we could not reasonably criticize Smith for his failure of precisely accurate statement, because graphs were unknown at the time except in the caves of Pleistocene man. Smith was a philosopher, and accustomed to loose statement. Having no knowledge of modern psychology, he did not understand the conventional nature of business morality, and the possibility of indefinite improvement; and he could not possibly have foreseen the fine idealism shown, for instance, in modern businessmen's conventions, although he recognized the connection of merriment and diversion with conspiracies to raise prices.

Smith's aspersions were surely unfairly derogatory. A simple and obvious manifestation of the profit motive he refers to as a "conspiracy" or a "contrivance." In this day of vigilant, vibrant, and vociferous Americansim, it is difficult to understand how Smith could have been so honored in his time. Adam Smith never knew what it was to meet a pay roll.

In defining monopoly as a conspiracy, Smith set a tradition that persisted for a century. Even only a year ago the Economic Principles Commission of the National Association of Manufacturers, in its exhaustive treatise on *The American Individual Enterprise System* reverted to Smith's definition:

> If we are to solve the monopoly problem, therefore, it is with these "conspiracies" that we must deal. If all such conspiracies can be eliminated and our economic system kept free of them, there will be no monopoly problem. There will be no monopoly problem because, although we shall still have many monopolies based upon patents, copyrights, and special franchises, we shall have no monopolies based upon conspiracies, and it is only the latter which are contrary to public welfare.[2]

The general view of the Association appears to be that there is very little conspiracy and therefore very little monopoly in the American economy. In the *Public Service Magazine*, a recent article goes even further: "Tax-paying electric companies are not monopolies because anyone can go into the same business if the people of municipalities grant them franchises."[3] Not many economists realize the broad pervasiveness of freedom of entry.

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[1] This address was delivered by Professor Ise, in his inimitable manner, at a dinner meeting of the American Economic Association, December 30, 1947.

[2] *Op. cit.*, Vol. II, p. 594.

Thus the Association does not regard conspiracies as characteristic of the American individual enterprise system, whereas Smith believed that all businessmen had a strong "propensity to conspire." Since the time of Alfred Marshall, economists have tried to effect a reconciliation of these two views, but the general picture of monopoly is blurred, not only with respect to definition, but with respect to its amount, character, and location.

In any case, it is not monopoly in its vulgar sense that our businessmen seek; it may be only co-operation to prevent the "vicious practice" of price cutting, to eliminate "price demoralization," "chiseling," "destructive competition," or perhaps "cutthroat competition" or "chaotic competition"; or "industrial cannibalism"; it is an unselfish effort to maintain "business stability" in the common interest of all, to follow "the golden rule in business" and the "live-and-let-live" policy, to secure the "voluntary sharing of available business"—a kind of Christian brotherhood in business, with no thought of exploiting the public but merely with the purpose of enabling all to make a "reasonable profit"; a noble purpose because "he profits most who serves best," or perhaps better, "he serves best who serves himself generously first." Co-operation, not monopoly in the invidious sense, is the keynote of modern business—friendly, constructive co-operation, co-operation for the achievement of the highest ideals in business, co-operation in service to competitors and the public, but particularly to competitors, if they do not violate the rules of gentlemanly competition.

The records of the meetings of merchants, trade associations, realtors, and manufacturers will prove that this is true. At a forenoon session of realtors which I once attended, an hour and a half were devoted to co-operation—the most eloquent and moving part of the program; and on this all were in hearty agreement. Cynics sometimes see only monopoly in this, but it is something higher and nobler. It represents a revulsion against the tyranny, waste, brutality, and unprofitableness of competition.

It has been charged, notably by Messrs. Moulton *et al.* that although the business leaders are mainly interested in serving the public, they have a tendency to offer this service at a high price, quite as if they were also interested in profits. The implication is unjust. It is true that high prices result in high profits, but the profits are only incidental; and they are devoted to public service, too, in industrial research, new plants and plant improvement, higher salaries for more efficient staff managers, and higher wages for labor.

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[3] *Op. cit.*, November, 1947, p. 8.

Since the monopolies have expanded more rapidly than the competitive industries, it is clear that the monopolies have rendered or are about to render the greater services, if they are not subject to interference. The higher the prices, the greater the profits and the greater the service rendered, and the greater the profits again. It is very difficult to disassociate prices and profits from service. The stockholders who receive high dividends are in a position to serve the people by paying taxes and buying bonds. The people who buy the high-priced products are merely casting their bread upon the waters; and the higher the prices are, the more bread they can cast upon the waters, and the more the bread is watered.

The profits are only the means to service, and as such have a derived nobility, which we can see clearly at businessmen's conventions, where the word "profit" receives only a modest amount of apologetic attention, while service is constantly stressed. This is in embarrassing contrast with the meetings of the American Association of University Professors, where salaries are often discussed at great length and with deep interest while service is scarcely mentioned. It appears that businessmen are really more idealistic than professors.

Doctors Moulton and Nourse have gone so far as to suggest that the monopolists reduce their prices and profits for the general good of all, but this suggestion indicates a misunderstanding of the function and significance of profits. Furthermore, as Carl Snyder has pointed out: "Easy to see that profits can never long be unduly high; that they are naturally self-regulating, and can never for any length of time much exceed the going rate of interest." As for the monopolies, "each and all of them is especially interested in producing and selling at the lowest profitable price. In no other way can they maintain their primacy." Going still further Dr. Snyder concludes: "So, if higher wages come solely from increased production; if increased production comes solely from additional capital; and if this capital is derived almost wholly from profits, it must follow that the highest rate of profits will promote the greatest progress and increase of wages."[4]

In this identity of the motives of profit and service, the superiority of capitalism to communism stands out with startling clearness. Inasmuch as the two motives are the same, capitalism can appeal to either with success. Communism offers praise for the service motive, but only condemnation for the profit motive, thus greatly reducing its appeal.

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[4] *Capitalism the Creator,* pp. 143, 157, 250.

For this reason, it is doubtful if the Truman Doctrine or the Marshall Plan is necessary to forestall the world-wide spread of communism, or whether the Dies-Rankin-Thomas Committee is really needed to preserve our economy of individualism and free enterprise.

The co-operative spirit in business has spread with remarkable rapidity in recent years. Some men here will remember a time when railroads fought for business, when utilities fought each other, when banks competed aggressively for loans, even cutting interest rates, when newspapers fought each other bare knuckles, when farmers fought merchants, and individual merchants fought each other, the mail-order houses, the chain stores, and the utilities. Today this disorderly condition no longer prevails. A great calm has settled over the business world. It is now one happy family, living at peace with the world. In the chamber of commerce, or Rotary or Kiwanis Club, merchants, managers of mail-order houses, chain stores, and utilities, newspaper magnates, well-to-do farmers, lawyers, doctors, dentists, preachers, and professors—all sit down together and discuss ways and means of making Penobscot a greater, more properous town, safer from un-American elements. City and state development commissions also co-operate in this great pacific and developmental work, while the National Association of Manufacturers and the Chamber of Commerce of the United States promote co-operation on a national scale, and the international cartels co-operate internationally.

The breadth and generosity of the modern captain of industry and the broad pervasiveness of his influence has been well presented by Veblen:

> So the captain of industry came into the place of first consequence and took up the responsibility of exemplar, philosopher and friend at large to civilized mankind; and no man shall say that he has not done it as well as might be expected. Neither has he fallen short in respect of a becoming gravity through it all. The larger the proportion of the community's wealth and income which he has taken over, the larger the deference and imputation of merit imputed to him, and the larger and graver that affable condescension and stately benevolence that habitually adorn the character of the large captains of solvency. There is no branch or department of the humanities in which the substantial absentee owner is not competent to act as guide, philosopher and friend, whether in his own conceit or in the estimation of his underlying population—in art and literature, in church and state, in science and education, in law and morals—and the underlying population is well content. And nowhere does the pecuniary personage stand higher or more secure as the standard container of the civic virtues than in democratic America; as should be the case, of course, since America is the most democratic of them all.[5]

Recognizing here the breadth and the fine co-operative idealism of American business leaders, we can find hope of a great improvement in the work of our universities, now that the Harvard School of Business Administration has displaced the Columbia Teachers College as the nursery for college administrators. There will be various gains from this expansion of sound business influence. Some of our colleges and universities will be put on a firm financial basis. For years they have operated at a net annual loss of hundreds of millions, many of them have balanced their budgets only by appeals to alumni and friends, and none, so far as I can ascertain, have ever declared any dividends. It has become a national scandal, and we may hope for better business management of our institutions under the new leadership. We may hope also for more progressive methods, comparable with those, let us say, in the farm implement or meat packing industry. Surely college education has hitherto been extraordinarily static and unprogressive.

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[5] Thorstein Veblen, *Absentee Ownership and Business Enterprise in Recent Times*, p. 118.

Perhaps under the new leadership we can look forward also to more effective suppression of the subversive, seditious, un-American, communistic professors and textbooks written by professors. Our great business leaders have been wrestling with this problem earnestly, but with only moderate success, for while they have been able to damp down the most incendiary of the textbooks, they have effected the removal of very few of the radicals who devote their energies to poisoning the eager, plastic minds of American youth, and undermining their natural innocence and faith in American institutions.

This threat is not imaginary. A recent article in one of our leading business journals had the following to say regarding one of the new subversive textbooks in economics:

> The philosophies advocated by *The Elements of Economics* are enemies of the individual competitive enterprise system and incompatible with the Christian religion. Yet this textbook, with its poisonous ideologies, is being used in many of our colleges. We try to care for our children's health, habits and manners, giving little thought to the fact that a school or college can cripple their minds. If we wish to have our young people poisoned with socialism taught in some of our colleges, then we should continue to be too busy thinking of other things while the youth of our land is being sold a bill of goods under the guise of liberalism and democracy—a bill of goods that is undermining our constitution.[6]

Here is a problem for our Association, and we may well take our cue from the captains of solvency, who in cases of fraud and putrescence discovered in the business household have hastened to the task of house cleaning without pressure from outside reformers.

Clearly we need a committee of our Association, to work in friendly co-operation with business leaders, the Thomas Committee, and the FBI, to check textbook manuscripts before they are published. If earnest and vigilant, such a committee could not only protect the students from subversion but could save publishers the cost of printing unworthy books and so enhance profits. Even more important, it would raise the reputability of our profession in the business world, would give us a prestige which we sorely need. Most important of all, it would enable us to preserve the precious essence of academic freedom that we have. The less we use this freedom, the longer it will last.

The businessman's love of co-operation does not, it is true, extend to farm and consumer co-operatives, nor to labor unions, but it is quite as well that it is not spread too thin. Co-operation among those of the lower classes, those of weak characters, often tends toward radicalism.

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[6] *Public Service Magazine*, November, 1947, p. 44.

A second form of business co-operation—we should not say monopoly—is that known as price leadership, in which the strong, the supernormal, in truly Christian spirit, assume the burden and responsibility of leading the weak in the ways of profit and service, lift from their shoulders the perplexing task of determining what prices are fair to those struggling in the business and to the public which is to be served. Here the leadership principle, which for some reason was not a success in Germany, is a very great success.

Or perhaps it is a merger of business enterprises which are too small, too weak to render the service that the public is entitled to. Such a merger not only strengthens and vitalizes the business structure but economizes in the use of that most scarce and precious productive resource—business talent. Only through a reduction in the number of business units can all business be served by the few men of greatest sagacity. It is of course difficult for us to measure and weigh the business Titans, but such philosophers as Spengler, Pareto, and Carl Snyder are agreed that the greatest are very great and the rarest are very rare. Just as there was only one Beethoven, one Schubert, one Shakespeare, so there was only one Rockefeller, one Marshall Field, one J. P. Morgan; and we should use such geniuses fully, and only for very important tasks, according to the law of variable proportions. Even doing this, we shall find that we have not enough. If we assume that there are as many as a dozen of the greatest geniuses, it is clear that we must have many more mergers to provide full play for their talents and to enable business concerns to provide the service that the public should have.

Even if we were to assume that there are monopolies and that it would be advantageous to destroy them, we face the fact that it is futile to try to do so. In the first place, it is difficult to treat an ailment unless we know what and where it is. Tracing the analogy historically, we can see how easy was the problem of combating disease, or of evil generally, when evil was the work of the Devil. Prayers and incantations were the common remedies. The devils in the men of Gergesene were simply transferred to swine, which ran into the sea and were drowned. In the days of the Devil theory of monopoly the cure seemed simple too—the Sherman Act; but the Sherman Act made no provision for transferring monopoly to swine and was therefore ineffective.

Today we appear to have lost all certainty and precision in this as in some other economic questions. Monopolists, and also monopolistic competitors, have more or less control over supply and price, and a given amount of control over supply has more or less effect on price; they—that is, all monopolists and monopolistic competitors—must meet more or less competition from substitutes, therefore face more or less elastic average revenue curves, and therefore have more or less incentive to restrict output, to which incentive they will yield more or less, according to whether they have more or less of the profit motive or the desire to serve the public well, and according to whether there is more or less free entry and whether they look more or less to the long-run future. This is the general picture of the monopoly that the trust-busters would exercise. It looks a little like general indisposition and lassitude as problems in the field of medicine. It is true that we might start with the worst, or the biggest, if we know which is the worst, or the biggest, and then work up on the scale until funds are exhausted; or we might make the black-white, saint-sinner, good-bad classification that Theodore Roosevelt made, and shake the big stick more menacingly at the bad than at the good monopolies. In Roosevelt's time this tended to direct public attention to fundamental moral issues, and so tended to reduce the amount of sin, but it did not reduce the amount of monopoly appreciably. Similar campaigns today do not accomplish much more.

A second difficulty in the way of trust-busting appeared after some years of experimentation with the Sherman Act. The government finally came to see that the trusts did not want to be busted, and since the monopolists provided most of the campaign contributions for both great—or shall I say "large"—parties, they were able to prevent serious interference with their careers of service through profits. This is fortunate, really, because through their campaign contributions the monopolists have made possible the successful operation of the American system of democracy in a harmonious and amicable manner—harmonious and amicable because the two great parties, both supported by friendly monopolists, have been able to co-operate fully in developing a homochromatic American political unity, homogeneity and amity scarcely inferior to the unipartisan democracy of fascist Italy and Germany. In this situation, most of the people, even of the lower classes, were happily permitted to march in parades, cheer in political rallies, and vote, but were offered no opportunity to vote for communistic men or measures, and American democracy was secure. It is unnecessary to say that this happy situation ended with the administration of Franklin D. Roosevelt. It would be a most ungraceful gesture for a political party which had received 8 million dollars from the monopolists to turn upon them and destroy them; and of course there could then be no further campaign contributions with which to enlighten the

American people as to the virtues of rugged individualism, competitive free enterprise, and the American Way. Competitive businesses do not make enough profit to assume this obligation and render this great democratic service.

Within the past half-century there has been a great change in the attitude of the people toward monopoly. Fifty years ago our God-fearing fathers regarded the monopolists as wicked, sinful exploiters of the common people. Political messiahs and reformers, in that age of moral messmerism, threw ink bottles at monopoly, not at the devil, and called for enforcement of the Sherman law. In the moral and political atmosphere of the time, the Sherman law was a blessing in all respects. It made the people happy to know that they had such a law; it made the politicians happy to have an issue on which the people were safely united, with generous campaign contributions on the side; and it made the monopolists happy because it made them safe from effective attack. As Thurman Arnold has said: "The actual result of the anti-trust laws was to promote the growth of great industrial organizations by deflecting the attack on them into purely moral and ceremonial channels."[7]

Prohibition of monopoly operated somewhat like the noble experiment in liquor prohibition. The reformers were happy because they had a noble statute on the books; the bootleggers were happy because business was good and profits were ample; justice, police, and law-enforcement departments were happy because the bootleggers maintained a policy of sharing the profits; consumers were reasonably happy, those that survived the liquor; public utility magnates and other business leaders were particularly happy because the people had no time to consider problems of regulation, so busy were they with the great moral problems of suppressing the liquor traffic and securing liquor. Whenever anyone raised a disturbing economic question, someone shouted "prohibition," and the people organized posses to seek out the bootleggers, some with intent to hang them, others with the purpose of buying their products before risks and prices went up. Perhaps I may say that this general situation still exists in Kansas.

The attitude of the people toward monopoly has changed in recent years, however. The hostility formerly directed at the monopolists is now aimed at the bureaucrats and communists; and since the monopolists are also hostile to communism and to bureaucracy, there is now a fine, friendly community of interest here. The people no longer wish to destroy monopoly, but hope rather to enjoy its rich rewards some time in the future. They do not wish to destroy the Rockefellers, but, to paraphrase the old hymn, each one hopes to "be a Rockefeller and with the Rockefellers stand." Their chances are not good, or may even be worse than poor, but Americans are not easily discouraged by unfavorable odds, as we can see from the volume of stock and land speculation. Many of our national heroes have been monopolists: Vanderbilt, Carnegie, and Morgan. Here are the men who *succeeded* in achieving what most Americans would like to achieve; and it is not surprising that they should be accorded great merit and reputability. As Veblen said:

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[7] *Folklore of Capitalism*, p. 212.

> Men have learned, at some cost, that their exalted personages created *ad hoc* by incantation were of something less than no use to the common good, that at the best and cheapest they were something in the nature of a blameless bill of expense. The Civilized nations had turned democratic, so much of them as had a fairly colorable claim to be called civilized, and so they had been left without their indispensable complement of personages to whom to defer and to whom to impute merit. In so far as the ground had been cleared of institutional holdovers from pre-democratic times, there remained but one workable ground of distinction on which a practicable line of personages at large could be erected, such as would meet the ever-insistent need of some intoxicating make-believe of the kind. Democratically speaking, distinction at large could be achieved only in the matter of ownership, but when ownership was carried well out along the way of absentee ownership it was found to do very nicely as a base on which to erect a colorable personage, sufficient to carry a decently full charge of imputed merit. It results that under the aegis of democracy one's betters must be better in point of property qualifications, from which the civic virtues flow by ready force of imputation.[8]

Not only did the great monopolists accumulate wealth but they built big business combinations—big, great, and therefore *good.* This identification of bigness with goodness is a result of the common observation that as cities and communities grow larger land values rise and the people become more prosperous from paying higher rents. This principle, extended to universal application, satisfies not only the general American hunger for land increments but also the American passion for scientific method and objective measurement. We have always taken great pride in the Grand Canyon, Sequoia trees, Texas, the Empire State Building, the Golden Gate Bridge, and the United States Steel Corporation. We are happy to see all things growing big, great, beautiful, and good; and if in the process of growth they become monopolies, that is not a very important matter.

The attitude of the people toward monopoly is not altogether unlike their historic attitude toward what is vulgarly called "graft" in government. As long as they have some hope of sharing a little in the political gravy they take little interest in the elimination of the same. Here, also, their chances are not generally good, but a few do rise to rich rewards, and the rest hope that some day they may, or their children may, that in some way they may get up onto the table, or that something may fall off the table. As their chances of sharing in the fruits of corruption decline, their interest in good government tends to increase.

So with Congress eying campaign contributions, and the people indifferent, it is obviously difficult to do much to break up monopolies;

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[8] Thorstein Veblen, *Absentee Ownership and Business Enterprise in Recent Times,* p. 117.

for various reasons, it is also doubtful whether it would be wise to break them up. In the first place, how could we maintain economic progress without them? As Professor Schumpeter has well said, many of our most important improvements are the contributions of our great monopolies. Consider the contributions of the purely competitive farming business: the same wheat that Abraham grew in the land of Uz, hogs and cattle somewhat larger but the same in general character, the same milk and butter and cotton and wool; and on the other hand consider the tractor, combine, dial telephone, electric eye, and cellophane wrapper!

Particularly do we need monopolies in foreign affairs. The British rubber monopoly was essential to British imperial finance; the Dutch quinine monopoly brought needed revenues to the home treasury; Germany would have been of little power without Farbenindustrie; but for the United Fruit Company perhaps we should have no bananas, and the Standard Oil Company will have to be our main reliance for our share of Arabian oil. Let us remember that "the wise virgins took oil in their vessels with their lamps." As the specter of Russian communism looms more and more menacing we shall need more powerful monopolies in foreign affairs, to secure our share of the world's business, and to give capable and constructive direction to the policies of our State Department.

In the second place, the trust-busters may well beware lest they destroy the firm basis of vibrant, venturesome American individualism. Since the time of the Puritan descent on Plymouth Rock, American enterprise has been nurtured on the hope for land increments and monopoly profits. Lesser breeds of men might content themselves with earned incomes, but robust Americans aspired to something greater than this. As long as there were free lands and unused resources to appropriate and develop and destroy, many Americans sought the frontier, but today this source of inspiration has largely vanished. Our forests have mostly been cut and developed; our oil, natural gas, and other mineral resources are going fast, our range lands are gravely developed and depleted, and there is little to challenge the American spirit in what is left. In very recent years the air, for radio broadcasting, has been appropriated and developed by the great monopoly broadcasting companies; but it is doubtful if it will be practicable to appropriate the air for breathing—one of our last free resources. Enterprising Americans must now turn to the search for monopoly profit for zest in their business lives.

I say "monopoly" profit because I need not say that in a purely competitive economy there can be no net profit, in the long run—that entrepreneurs can earn only wages of management, perhaps higher than the common level of wages, but no different in essence. It is clear that the profit motive, which has made America what it is, or whatever it is, cannot function effectively in such an economy, that we cannot induce our great business leaders to put forth their best efforts for mere wages, for only as much as their services are worth in a competitive market. In such an economy we should of course get only such time-serving and dilettante efforts as we are accustomed to get from professors, engineers, accountants, and industrial workers. American enterprise has been powered by the quest for something more than this.

Thus the problem of monopoly proves to be nothing less than the problem of preserving rugged individualism at its highest. Many of the radicals, New Dealers, socialists, and communists assert that monopoly is stifling the rugged individualism natural to Americans, closing avenues of profit and service to young men of energy and promise; but this appears to be an error. The possibility of achieving monopoly is necessary as a spur to ambitious men, necessary to the preservation of rugged individualism. If this spur were removed, where would our ambitious young men go?

Many economists apparently do not understand the true meaning of the term individualism. Many have assumed that only individual proprietorships can truly represent this, have assumed that the growth and predominance of great corporations have destroyed the individualism so characteristic of American life. Perhaps the true nature of the concept of individualism is best elucidated in the treatise on *The American Individual Enterprise System* issued by the National Association of Manufacturers, where it is pointed out "that a dominant feature of our system is that our citizens perform their tasks and make their decisions as free individuals rather than as mere puppets of the government.... Our system is based upon the thesis that the individual is an entity in and of himself and in the aggregate is all powerful."

Here we see the identity of the individual in and of himself and the individual in the aggregate, for in the aggregate the individual is still an individual, although in and of himself he would presumably not be an aggregation. So the puddler in the United States Steel Corporation is an individual, and individualistic, if he is not a member of a union, and as long as the corporation is privately owned. Corporation law offers further clarification of the issue. A corporation is a legal *person,* and a person is of course an individual. Corporate persons are therefore really individuals. They present much greater variation in size than individual persons, perhaps greater variation in habits and characteristics, and are therefore more difficult to picture typically, but this variability is itself a significant aspect of individualism. The corporation is an individual, and since all the individual persons employed by the corporation and all the stockholders are individual "entities" in the aggregate, we have here a vast mass of individualism—raw, reckless, rampant, and rugged.

There is apparently something else, however, in this problem. Individualism appears only in the business areas of life, only in the quest for profits and self-advancement, only in private business. A merchant, a contractor, a broker, speculator, realtor, or an employee of any of these, is an individualist. In a privately-owned, business-managed corporation, all employees seek their own pecuniary advancement, all hope and expect to become president of the corporation and enjoy a princely salary. This makes the corporation individualistic. Activities engaged in for the general good of all do not represent individualism but rather communism; therefore there can be no individualism in government service, where the employees can have no hope of great pecuniary success. Professors in state schools, and indeed professors everywhere, since very few schools earn profits, must be communistic rather than individualistic in character, like the employees of government bureaus, like the preachers and Salvation Army and Y.M.C.A. workers.

A significant aspect of American individualism is that it is superior to all others. As the National Association points out: "Our organization is unique in the world of today. . . . Because of this philosophy and this incentive, we have had, throughout our history, an energizing element that has not been present to an equal degree in any nation following a different course." It is in this respect that the "American Way" is superior, not only to that of Russia, but to that of the Scandinavian countries, where individualism has been on the retreat before the sinister forces of co-operation and collectivism. In Sweden there are communists in both houses of the legislature. Even worse, the people are largely indifferent to such a situation.

The relation of the profit or covetousness motive and individualism to efficiency is not simple, but it is at any rate well known that the search for profits makes private business efficient, while government service is only bureaucratic. As Thurman Arnold has said:

> Government itself could not be efficient because it did not operate for profit, which was an essential element of efficiency. If a man did not work for profit he became bureaucratic, unless he happened to be a minister of the gospel, a professor, or perhaps a scientist. Hence, government clerks could not fail to be bureaucratic.[9]

Elimination of monopoly, finally, would deprive the superior businessmen of their only way of achieving economic security. Virile, adventurous spirits all, thirsting for the hazards and dangers of business warfare, these men are themselves scornful of security. They regard it as unworthy of the spiritual descendents of Daniel Boone and David Crockett, worthy only of slaves and prisoners; but for the sake of their heirs they accept it, unwillingly, but with some realization of the fact that producers in competitive businesses—farmers and merchants, for instance—are subject to constant worry and uncertainty, are of few days and full of trouble, subject to harassment by unco-operative competitors, and to the haunting possibility of losing all in the strong winds of business adversity.

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[9] Thurman Arnold, *The Folklore of Capitalism*, p. 207.

In any case, the monopoly and security are achieved only through competition. As the N.A.M. says, "As a people we have always held that security comes from opportunity and competition," but we must be careful about our time period. The opportunity and competition and the security are not synchronous. It is merely through opportunity and competition that the fittest survive to become monopolists, and so achieve security. Competition comes first, and is good because it may result in monopoly and security. The significance and exact meaning of "opportunity" is not quite clear, but perhaps it refers to the possibility of marrying the daughters of monopolists. At any rate, it is of course only a very few of the ablest men who achieve security through monopoly, and for such men security is good, although reluctantly accepted.

The security achieved through monopoly is, however, not equally good for other classes, and it is fortunate that only a very few achieve it—the few whose rugged, granitic characters make them impervious to the moral erosion of economic security. For common men, adventure, danger, risk, uncertainty, opportunity, and freedom are much more appropriate—the conditions which on the frontier brought to flower the true American character. To such men, security would present a serious moral danger. For the laborers, security is altogether demoralizing, particularly if it is provided by the state. Competition and insecurity are much better for workers, much more likely to bring out their full productive energies. Since farmers cannot form monopolies, they are demanding security through government subsidies, but it is not yet known what will be its effect on their enterprise and individualism. The hearts of the farmers seem to be sound so far, for they are generally opposed to bureaucracy and paternalism, except in the matter of farm subsidies.

So I conclude on a cheerful note which is altogether too rare in recent economic discussions. We need not, should not, dare not, cannot eliminate or seriously reduce monopoly in the economy. Since our meetings have been devoted partly to Keynesian economics, perhaps I may restate my general conclusion in the more precise exposition of Keynes. Let

Our be expressed by A
situation by B
is by C
most by D
happy by E
indeed by F
no by G
bureaucratic by H
intervention by I, and
needed by J

Thus we reach the summary conclusion: A B C D E F G H I J.

FACTORS AFFECTING INTERNATIONAL DIFFERENCES IN PRODUCTION[1]

By ERNEST C. OLSON
Board of Governors of the Federal Reserve System

With the establishment of international institutions of unprecedented political and economic potentialities attention has again been focused on the fundamental economic conditions which distinguish if not divide the nations of the world, and which will presumably occupy the attention of these institutions for years to come. Urgently needed relief and rehabilitation of war devasted areas, whether undertaken by countries individually or in concert with others, are expected to be succeeded by international consideration of proposals for the economic development of retarded areas. Inasmuch as the attainment of these economic objectives will rest heavily on the solution of problems of detail it is quite likely that the measurement and reporting of basic economic data on a larger scale than heretofore attempted will receive early consideration. It is scarcely necessary to say that the need for estimates of national income or national product should accord these subjects similar attention.

In recent years the literature has been enriched by numerous contributions chiefly concerned with problems of concept but also reporting estimates of national income for several countries and periods. A great many countries, however (many of increasing importance, including some in Latin America, the Near East and Far East), rarely appear in compilations of national income estimates. Further estimates undoubtedly would have been made if suitable basic data had been available, but in most cases the data describe each economy only in broad outline without the elaboration and detail desirable for estimating national income by the usual methods.

The purpose of this paper is to present an alternative approach to the problem of obtaining estimates of the national income of statistically poor areas and to attempt to measure the differential influence exerted on national income by selected variables. Beyond recognizing the need for exercising care in the selection of income data suited

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[1] The author is deeply indebted to Professor Paul H. Douglas for generous counsel and advice and for many helpful suggestions; to Mr. N. B. Guyol for making available the results of his extensive research in the field of world energy requirements; to Mr. William W. Young for preparing the chart; and to many others for critical comments.

The perseverance and co-operation of Stephanie K. Stevens and Dora Coppinger in performing the bulk of the computations for many preliminary studies and in carrying out related research is gratefully acknowledged. Finally, the author acknowledges the very considerable help of Martha A. Olson who provided not only encouragement but mathematical counsel and aid in the final computations as well.

to the purpose at hand, the discussion is not concerned with questions of concept of national income.

Tables I and II below show income per capita and per employed person for twenty-four geographic areas. Observed incomes[2] are quoted or derived from estimates of Colin Clark for the period 1935-38, while the other estimates, based on total national income as calculated by the method described in the following pages, refer to the year 1937. The great difference in income between relatively advanced and retarded countries is quite apparent. Per capita income ranges from approximately 100 IU's to somewhat over 700 IU's while income per

TABLE I

NATIONAL INCOME PER HEAD OF TOTAL POPULATION

(in International Units)

Geographic Area	Observed* Income	Calculated Income			
		f(P,E)	f(P,E,L)	f(P,E,A)	f(P,E,L,A)
United States	545	423	553	495	508
Canada	529	472	506	587	390
Argentina and Uruguay	488	218	375	267	370
United Kingdom	584	437	399	369	481
Eire	311	224	262	222	285
Norway	279	659	515	611	506
Sweden	367	432	359	440	320
Denmark and Iceland	347	348	343	362	323
Finland	200	316	267	324	238
France	358	316	344	322	349
Portugal	125	130	108	118	114
Netherlands	335	338	287	290	327
Belgium and Luxembourg	315	514	373	436	400
Germany and Austria	343	312	346	298	388
Switzerland	455	317	252	263	290
Italy	158	161	158	160	157
Baltic States	117	149	163	161	152
Poland	117	158	168	165	163
Czechoslovakia	161	307	272	301	264
Hungary	161	147	128	156	110
Balkan States	102	107	131	112	135
Australia	521	369	581	444	561
New Zealand	710	368	535	369	638
Japan	139	170	99	142	98

* Colin Clark, *The Economics of 1960.*

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[2] Colin Clark, *The Economics of 1960* (London, 1944). Income is expressed in a common unit of equivalent international purchasing power, the "international unit," which adjusts for price differences between the United States and other countries. The international unit is defined by Clark in *The Conditions of Economic Progress* as "the amount of goods and services which one dollar would purchase in the U.S.A. over the average of the period 1925-1934." It is assumed that the unit has been adjusted for the later period 1935-38.

employed person ranges from about 200 IU's to a little more than 1,700 IU's. Greater contrasts are evident if the more impoverished areas of the East are considered. For the period 1925-29 Clark estimates income per capita for China, Korea, and Formosa to be only 44 IU's and income per "breadwinner" 110 IU's. Some increase may have occurred during the ensuing decade but it is difficult to believe that comparable estimates for 1937 or the average for 1935-38 would exceed those for the earlier period by more than 10 per cent. The poverty of at least half of the world's population is appalling; indeed, for this vast sector of humanity life is a precarious hand to mouth existence at the margin with mass starvation a not uncommon occurrence. A large proportion of the more fortunate remainder enjoys a subsistence which may be characterized as middle-class poverty, generally well below minimum standards of health and decency. Only about a quarter of the world's population, located chiefly in North

TABLE II

NATIONAL INCOME PER HEAD OF EMPLOYED POPULATION

(in International Units)

Geographic Area	Observed* Income	Calculated Income			
		f(P,E)	f(P,E,L)	f(P,E,A)	f(P,E,L,A)
United States	1,594	1,239	1,619	1,448	1,487
Canada	1,606	1,434	1,538	1,782	1,183
Argentina and Uruguay	1,294	578	996	708	980
United Kingdom	1,408	1,054	963	891	1,161
Eire	726	524	612	520	666
Norway	692	1,632	1,276	1,515	1,256
Sweden	801	942	783	960	699
Denmark and Iceland	778	780	769	810	724
Finland	400	631	533	647	476
France	697	615	669	626	679
Portugal	244	253	211	229	222
Netherlands	945	953	810	819	922
Belgium and Luxembourg	706	1,151	835	977	896
Germany and Austria	716	651	723	621	810
Switzerland	996	693	551	576	635
Italy	384	391	383	390	381
Baltic States	185	236	258	255	241
Poland	257	348	370	363	359
Czechoslovakia	360	686	610	674	590
Hungary	371	338	294	359	254
Balkan States	199	208	259	219	264
Australia	1,276	904	1,424	1,088	1,375
New Zealand	1,764	914	1,330	917	1,585
Japan	312	380	222	318	219

* Calculated from Colin Clark, *The Economics of 1960.*

America, Western Europe, Australia, and New Zealand, has an economic status which can be recognized as a level of *living*. One is led inescapably to agree with Clark that the world is indeed a "wretchedly poor place."

Much attention has been given in recent years to various proposals for the gradual eradication of poverty in undeveloped areas. Although the proposals necessarily differ widely in many respects, the common objective of all is to increase production. In general, it is recognized that a necessary, although by no means sufficient, condition for the attainment of this objective is an adequate and economic source of energy, without which transportation and processing, and to some extent agriculture, must be carried on at enormous human costs. Over a period of years areas possessing abundant water power potentials have been marked for hydroelectric projects ranging in size from small single-purpose tributary dams to extensive multiple-purpose river systems designed not only to provide an abundance of electrical energy but also to extend river navigation, control floods, and irrigate farm lands. But even as these plans for power development have become clearer on the horizon of the future the fabulous possibilities of nuclear fission have come into view. The full import of atomic energy for the welfare of mankind will, of course, be years in unfolding, but it is not too much to say that we may witness in this generation the beginning of the mass emancipation of humanity from the primitive earth-scratching of antiquity and from the poverty of the ages.

At the outset it is well to assert that this investigation has been limited by the data to only a few countries of widely differing economic characteristics and the conclusions reached are necessarily tentative and subject to a number of qualifications. Only a modest beginning has been made and much more work remains to be done before this approach to the calculation of national income can be fully appraised. The work thus far is deficient in several respects but the objective of stimulating further research has encouraged the preparation of a preliminary report setting forth the salient features of the work and suggesting a few lines of attack for further investigation. Although there may be instances where enthusiasm has superseded judgment, an effort has been made to contain the interpretation within reasonable economic and statistical limits.

Part I describes the method and reports the results; Part II evaluates both.

I

International cross-section comparisons of national income may be quite misleading and of limited value unless such income estimates are adjusted insofar as possible not only for conceptual comparability but also for price level disparities between countries. The national income data used in this study are estimates of real net income produced[3] expressed in international units, and are averages for the period 1935-38. Inasmuch as the other data refer chiefly to the year 1937, incomes calculated from this information are interpreted as income estimates for that year. Methods of conversion and estimation may be found in Appendix A; sources are reported in Appendix B.[4]

An examination of the energy[5] position of 163 geographic areas chiefly for the year 1937 furnished the basis for this enquiry into the relationship between real income and certain coincident factors which influence its magnitude.[6] Initially, a comparison was made between various estimates of the national income of several countries and the amount of energy, animate and inanimate, including human, each country consumed for productive purposes. When the countries were ordered according to energy consumption their relative positions were substantially the same as when they were ordered according to income. The coincidence of large values for energy and income and of medium and small values as well, suggested the possibility of measuring unknown income from known energy consumption. Accordingly a number of correlation studies were made relating national income to total energy used for productive purposes. Estimates of national income calculated in this manner from energy consumption alone were subject to rather large errors, however.

Additional variables—livestock, area of cultivated land, and employed population—were introduced and multiple correlations by the method of least squares were made relating these variables and energy to Clark's estimates of real income produced. The energy data were adjusted to exclude human energy since employed population now appeared as a separate variable. Scatter diagrams plotted on logarithmic scales suggested the fitting of straight lines or planes and four correlations were made with a sample of twenty-four observations. The functions selected are reported below. In the notation employed,

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[3] Colin Clark, *The Economics of 1960* (London, 1944). To obtain totals, per capita incomes were multiplied by appropriate populations, both reported in the final table of this source.

[4] In order to conserve space the appendices have been omitted. A limited number of copies are available, however, and may be obtained from the author upon request.

[5] Human and animal energy, and all forms of inanimate energy excepting solar and atomic energy.

[6] The reader is referred to the work of Sr. Raul Simón for an interesting discussion of the use of energy data in the calculation of the national income of Chile for various years: *Anales del Instituto de Ingenieros de Chile* (Santiago, Chile), February and March, 1935 "Determinacion de la Entrada Nacional," and the same journal for July-August, 1940, "Determinacion de la Entrada Nacional para los años 1938 y 1939."

I = total national income expressed in international units
E = total energy excluding human energy
P = employed population
L = head of livestock expressed in livestock units
A = area of cultivated land.

The parameters *k, j,* λ and α refer to the variables, employed population, energy, livestock, and cultivated land respectively, and appear as regression coefficients in the various estimating equations. The constant term is represented by the letter *b*.

$$\begin{cases} I = b\,P^k E^j \\ \text{Log}\,I = \text{Log}\,b + k\,\text{Log}\,P + j\,\text{Log}\,E \\ I = f(P,E) \end{cases}$$

$$\begin{cases} I = b\,P^k E^j A^\alpha \\ \text{Log}\,I = \text{Log}\,b + k\,\text{Log}\,P + j\,\text{Log}\,E + \alpha\,\text{Log}\,A \\ I = f(P,E,A) \end{cases}$$

$$\begin{cases} I = b\,P^k E^j L^\lambda \\ \text{Log}\,I = \text{Log}\,b + k\,\text{Log}\,P + j\,\text{Log}\,E + \lambda\,\text{Log}\,L \\ I = f(P,E,L) \end{cases}$$

$$\begin{cases} I = b\,P^k E^j L^\lambda A^\alpha \\ \text{Log}\,I = \text{Log}\,b + k\,\text{Log}\,P + j\,\text{Log}\,E + \lambda\,\text{Log}\,L + \alpha\,\text{Log}\,A \\ I = f(P,E,L,A) \end{cases}$$

The basic data are presented in Table III and the comparative rank of each geographic area is shown in Table IV. The areas are ranked by magnitude of income, in descending order, and their ranks according to each of the other variables are indicated by the numerals in the adjacent columns. As in the earlier studies, a striking similarity is evident in the rankings by income and energy. In eight cases the ranks are identical; in two others they are one rank apart; six are two ranks apart; and eight others differ by three or more ranks. Inspection of the table reveals less agreement between the ranks of income and the ranks of the other variables.

The regression equations obtained with the above functions are shown below:

$$\text{Log}\,I = 1.476 + 0.587\,\text{Log}\,E + 0.294\,\text{Log}\,P$$

$$\text{Log}\,I = 1.430 + 0.577\,\text{Log}\,E + 0.187\,\text{Log}\,P + 0.129\,\text{Log}\,A$$

$$\text{Log}\,I = 0.884 + 0.504\,\text{Log}\,E + 0.233\,\text{Log}\,P + 0.277\,\text{Log}\,L$$

$$\text{Log}\,I = 0.663 + 0.478\,\text{Log}\,E + 0.349\,\text{Log}\,P + 0.409\,\text{Log}\,L - 0.176\,\text{Log}\,A$$

The values obtained for the parameters k, j, λ and α, their standard errors, the coefficients of correlation and determination, and other numerical results are summarized in Table V. However, the statistics presented in this table are intended only as very general guides to interpretation and are used here with reservations as to their meaning when applied to abnormal distributions.

TABLE III

BASIC DATA

(Chiefly 1937)

Geographic Area	Observed Income* (Billions, I.U.) Ave. 1935–38	Energy Used for Productive Purposes† (Billions, kwh.)	Employed Population‡ (Millions)	Livestock§ (Millions of equivalent head)	Cultivated Land¶ (Millions, ha.)
United States	71.2	898.0	44.6	70.9	142.1
Canada	5.98	58.0	3.72	8.80	23.5
Argentina and Uruguay	7.37	20.6	5.69	39.1	27.4
United Kingdom	27.9	256.5	19.8	11.1	5.30
Eire	0.91	2.82	1.26	3.80	1.32
Norway	0.81	18.1	1.18	1.53	0.86
Sweden	2.32	21.0	2.89	2.43	3.77
Denmark and Iceland	1.33	8.04	1.70	3.01	2.64
Finland	0.77	6.50	1.93	1.66	2.59
France	15.0	113.6	21.6	16.7	22.8
Portugal	0.94	3.15	3.85	1.49	1.65
Netherlands	2.92	23.2	3.09	2.76	1.08
Belgium and Luxembourg	2.74	42.0	3.88	1.96	1.24
Germany and Austria	26.1	235.0	36.4	25.1	22.3
Switzerland	1.92	7.61	1.92	1.40	0.52
Italy	6.90	42.1	18.0	8.17	15.3
Baltic States	0.66	2.57	3.59	3.62	6.08
Poland	4.07	29.7	15.8	9.57	19.1
Czechoslovakia	2.46	34.4	6.84	4.34	6.03
Hungary	1.46	5.31	3.94	2.03	5.96
Balkan States	5.11	22.2	25.7	16.5	29.5
Australia	3.61	19.0	2.83	23.7	13.4
New Zealand	1.14	3.29	0.65	7.59	0.84
Japan	10.1	82.0	32.5	1.74	6.67

* Calculated from Colin Clark, *The Economics of 1960*.

† Total animate and inanimate energy used for productive purposes, excluding human energy.

‡ See Appendix A for method of estimation.

§ See Appendix A for method of estimation (excludes power animals such as asses, mules, horses, etc., but includes milk cows and other cattle, sheep, goats, hogs, rabbits and fowl).

¶ Arable land plus land devoted to tree and bush crops.

The values obtained for the logarithmic standard error of estimate, adjusted for errors of small sampling, range from a high value of 0.176 for the function $I = f(P,E)$ to a low of 0.130 for the function

$I = f(P,E,L,A)$. In percentage terms measured both upward and downward from the regression surface these results are respectively, +50 per cent or −33 per cent, and +35 per cent or −26 per cent. The correlation coefficients for all correlations were extremely high, ranging from 0.947 to 0.971, but these magnitudes reflect to some extent the influence of a few observations characterized by large values of the variables and are therefore to be interpreted cautiously.

TABLE IV

RANKS OF TWENTY-FOUR GEOGRAPHIC AREAS WITH RESPECT TO FIVE VARIABLES

Geographic Area	Total Income	Total Energy Minus Human	Employed Population	Livestock	Cultivated Land
United States	1	1	1	1	1
United Kingdom	2	2	6	7	14
Germany and Austria	3	3	2	3	6
France	4	4	5	5	5
Japan	5	5	3	20	10
Argentina and Uruguay	6	14	10	2	3
Italy	7	7	7	10	8
Canada	8	6	14	9	4
Balkan States	9	12	4	6	2
Poland	10	10	8	8	7
Australia	11	15	18	4	9
Netherlands	12	11	16	16	21
Belgium and Luxembourg	13	8	12	19	20
Czechoslovakia	14	9	9	12	12
Sweden	15	13	17	17	15
Switzerland	16	18	20	24	24
Hungary	17	20	11	18	13
Denmark and Iceland	18	17	21	15	16
New Zealand	19	21	24	11	22
Portugal	20	22	13	23	18
Eire	21	23	22	13	19
Norway	22	16	23	22	23
Finland	23	19	19	21	17
Baltic States	24	24	15	14	11

The functions $I = f(P,E)$ and $I = f(P,E,A)$ appear to yield less satisfactory results for the calculation of income than do the functions in which livestock appears as an independent variable. The addition of cultivated land to energy and employed population reduced the standard error of estimate only slightly, from 0.176 to 0.172. The parameter for cultivated land, α, is the smallest of all the regression coefficients, appearing in one function as a positive value and in another as a negative value. The negative value of α obtained with the function $I = f(P,E,L,A)$ is a rather surprising result. In most of the countries of the sample cultivation of land is a major occupation and an important source of income. In the absence of unusual circumstances we should thus expect to find a direct relationship between income and cultivated land. A possible explanation may be found in the difference between the relationship as it applies to a single country and as it applies to a comparison of countries. Thus, the association of high income with small land area in some countries and low income with large land area in others would contribute to such an inverse relationship. However, in view of the extremely crude land data it may not be necessary to look beyond their revision for an explanation. For present purposes it is perhaps sufficient to call attention to the standard errors of the land parameter. This standard error in the function $I = f(P,E,L,A)$ is nearly 3/5 the value of α, an error of such magnitude as to render the land parameter of little use in measuring the relationship between land and income. The value of this parameter,

TABLE V

SUMMARY OF STATISTICS

Statistics	Function			
	f(P,E)	f(P,E,L)	f(P,E,A)	f(P,E,L,A)
Parameters				
j	0.58726	0.50376	0.57697	0.47787
k	0.29368	0.23272	0.18708	0.34878
λ	—	0.27682	—	0.40921
α	—	—	0.12909	−0.17584
Standard errors of parameters				
$\bar{\sigma}_j$	0.08959	0.07260	0.08765	0.07089
$\bar{\sigma}_k$	0.11240	0.08840	0.13215	0.10801
$\bar{\sigma}_\lambda$	—	0.07132	—	0.10270
$\bar{\sigma}_\alpha$	—	—	0.08940	0.10218
Sum of parameters	0.88094	1.01330	0.89314	1.06002
Log. Standard error of estimate $\bar{S}$	0.17621	0.13637	0.17181	0.13012
Antilog of $\bar{S}$	1.500	1.369	1.485	1.349
Reciprocal of Antilog of $\bar{S}$	0.667	0.730	0.673	0.741
Percentage of observations lying within plus or minus 1, 2, or 3 standard errors of estimate				
±1 S	75.0%	70.8%	70.8%	70.8%
±2 S	95.8%	100.0%	100.0%	100.0%
±3 S	100.0%			
Constant term log b	1.476	0.884	1.430	0.663
Coefficient of correlation $\bar{R}$	0.947	0.968	0.950	0.971
Coefficient of determination $\bar{R}^2$	0.896	0.938	0.902	0.944

Coefficients of simple correlation

I=f(P) $r_{12}=0.84380$
I=f(E) $r_{13}=0.93526$
I=f(L) $r_{14}=0.73292$
I=f(A) $r_{15}=0.72967$
P=f(E) $r_{23}=0.78643$
P=f(L) $r_{24}=0.54875$
P=f(A) $r_{25}=0.76576$
E=f(L) $r_{34}=0.58456$
E=f(A) $r_{35}=0.63449$
L=f(A) $r_{45}=0.81647$

−0.176, plus or minus one, two or three standard errors might be as high as −0.074, +0.028, or +0.130, or as low as −0.278, −0.380 or −0.482. The positive land parameter obtained with the function $I = f(P,E,A)$, is subject to even greater error, approximately 2/3 the value of α. In view of such a wide range of values the relationship found between land and income, whether direct or inverse, would seem to be of little significance.

TABLE VI
TOTAL NATIONAL INCOME
(in millions of International Units)

Geographic Area	Observed* Income	Calculated Income			
		f(P,E)	f(P,E,L)	f(P,E,A)	f(P,E,L,A)
United States	71,177	55,300	72,280	64,670	66,400
Canada	5,978	5,336	5,724	6,631	4,403
Argentina and Uruguay	7,369	3,292	5,670	4,030	5,582
United Kingdom	27,857	20,860	19,050	17,620	22,960
Eire	911	657	768	652	836
Norway	815	1,923	1,503	1,785	1,479
Sweden	2,316	2,726	2,265	2,777	2,022
Denmark and Iceland	1,326	1,329	1,311	1,381	1,235
Finland	770	1,216	1,027	1,247	916
France	15,036	13,270	14,440	13,520	14,660
Portugal	938	973	813	881	854
Netherlands	2,925	2,949	2,507	2,534	2,852
Belgium and Luxembourg	2,740	4,468	3,244	3,793	3,479
Germany and Austria	26,068	23,700	26,310	22,620	29,490
Switzerland	1,916	1,333	1,061	1,109	1,222
Italy	6,905	7,019	6,882	7,000	6,843
Baltic States	665	847	924	916	865
Poland	4,072	5,510	5,857	5,752	5,688
Czechoslovakia	2,463	4,695	4,170	4,612	4,037
Hungary	1,462	1,331	1,158	1,412	1,000
Balkan States	5,110	5,352	6,578	5,630	6,776
Australia	3,610	2,558	4,028	3,078	3,890
New Zealand	1,143	592	862	594	1,027
Japan	10,119	12,350	7,207	10,320	7,116

* Calculated from Colin Clark, *The Economics of 1960.*

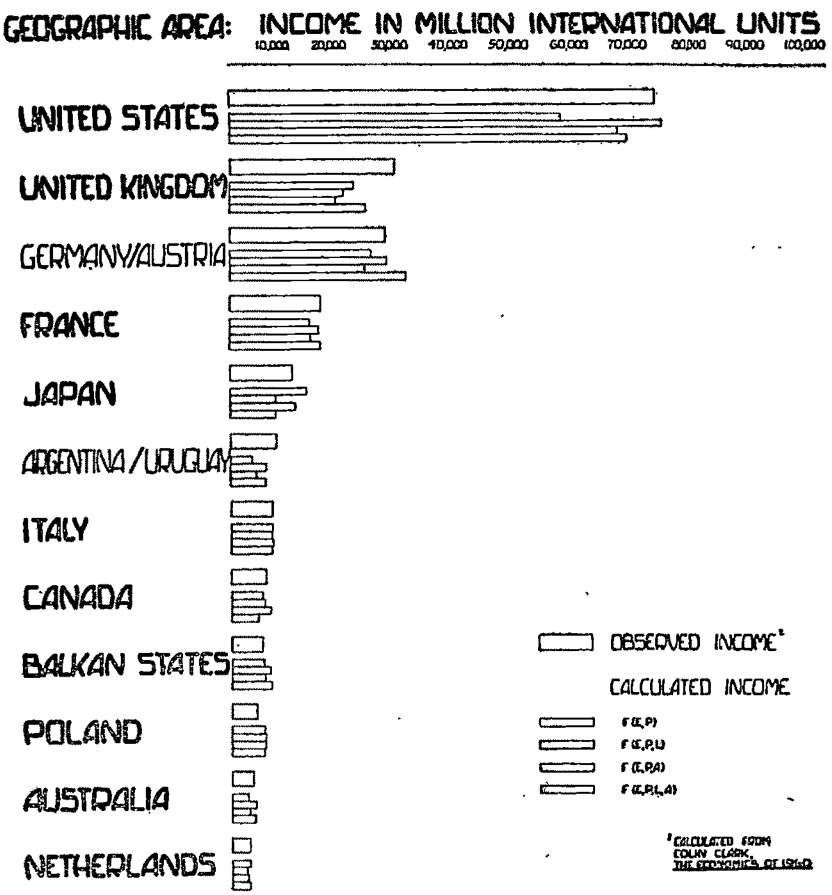
With the addition of livestock to energy and employed population, however, the standard error of estimate was reduced from 0.176 to 0.136, thus resulting in a more accurate estimating equation. The parameter for employed population, k, was lowered somewhat by the addition of livestock to the function $I = f(P,E)$ and reduced further by the addition of cultivated land to the same function. The energy parameter, j, was only slightly affected by the addition of cultivated land to the function $I = f(P,E)$ but was lowered considerably by the addition of livestock. In the function $I = f(P,E,L,A)$, j was further reduced slightly, while k and λ increased considerably.

Certain general conclusions can be drawn from a comparison of the statistics reported in Table V. As might be expected from an examination of the ranked data (Table IV), energy emerges as the variable most highly correlated with income, while employed population and income rank second in the correlations of pairs of variables. In every function the energy parameter j is considerably larger than any of the other parameters. For two hypothetical countries differing only by a small percentage in energy, the other independent variables identical, we should thus expect a much larger percentage difference in income than would follow from the same percentage spread in livestock or employed population considered one at a time with energy held constant. In the case of the function $I = f(P,E,L)$ we should expect the difference in income to be approximately 0.50 per cent, 0.23 per cent, and 0.28 per cent for 1 per cent differences in energy, employed population, and livestock respectively, and in the function $I = f(P,E,L,A)$ the corresponding percentages for the same variables and cultivated land would be 0.48 per cent, 0.35 per cent, 0.41 per cent, and −0.18 per cent.

In all of the functions the standard errors of j were quite small relative to j, about 1/6 or 1/7 the value of j in each instance. The errors in λ were approximately 1/4 the value of λ; in two functions the errors in k were a little more than 1/3 the value of k and in one function a little less. In the function $I = f(P,E,A)$ the standard error of k amounted to 7/10 the value of k and the error of α was approximately 2/3 the value of the parameter. The j's thus appear to be the most reliable of all the regression coefficients followed in order by the λ's and k's. Although in two functions the k's are subject to an error slightly greater than 1/3 their value, the error of k in the function $I = f(P,E,L,A)$ is less than 1/3 the value of k.

The distribution of the observations about the regression surface appears to be considerably better than would be anticipated on the basis of theoretical expectations. In every correlation at least 70.8 per cent of the observations were found to lie within $\pm 1S$ and 95.8 per cent within $\pm 2S$. In no instance were there any observations outside $\pm 3S$, and in three of the four correlations 100 per cent of the observations were within $\pm 2S$. Observed and theoretical incomes are presented for the entire sample in Table VI and for the twelve largest observations in the accompanying chart. The detached bar in each group represents observed income while the other bars represent income estimates made with the four functions discussed above. The vertical order of the bars in each group is the same as that in the legend.

In general, differences between observed and calculated income



TOTAL NATIONAL INCOME OBSERVED & CALCULATED

*CALCULATED FROM COLIN CLARK, THE ECONOMICS OF 1960

may be explained by the following considerations: (1) because of the omission of variables which affect income, the observed income may be extremely high or low compared with that of other countries in the sample which possess the same magnitudes of the independent variables; (2) the particular function used may not accurately measure the relationship between the variables within the deviating countries; (3) the operation of random factors.

An important cause of differences in either direction between theoretical and observed income is undoubtedly the failure to confine the variables to the geographic area appropriate for each observation.

Thus, the independent variables refer to regions defined by national boundaries,[7] but the dependent variable is not so restricted. The income data include certain net international payments such as dividends, interest, profits, and immigrant remittances which represent income produced by a country's nationals and property abroad. No offsetting adjustment has been made for factors of production physically located in one country but yielding income to another. Furthermore, in cross-section studies deviations in either direction may occur as a result of peculiar market or climatic conditions prevailing during the year selected. This is especially true of countries producing relatively important quantities of a limited number of raw materials. Some deviation is doubtless due also to differences in periods covered by the dependent variable (average 1935-38) and the independent variables (chiefly the year 1937).

Upward deviates such as New Zealand, Argentina and Uruguay, Canada, the Netherlands, the United Kingdom, Switzerland, and Hungary may be partially explained by the operation of variables not included in the functions or by variables which are included but which exert greater than average influence on national income. Receipts from extensive foreign investment and tourist trade, principally in the case of the United Kingdom, Switzerland, and the Netherlands, tend to increase differences between their calculated and observed incomes. Clark[8] estimates that in 1935 income due the United Kingdom from abroad amounted to 215 million pounds or approximately 1,050 million dollars. Roughly calculated, the latter amount is equivalent to about 1,300 million international units.[9] For 1938 Kaldor[10] estimates net income from foreign investments at 200 million pounds or approximately 1,200 million IU's. Considerably smaller amounts of income from abroad were received by France, Belgium, Ireland, Switzerland, the Netherlands, Sweden, and the United States. With the exception of Belgium, all of these countries appear in at least one of the functions of this study as upward deviates. Adjustment for such receipts from abroad should tend to reduce the deviations of these countries, especially that of the U.K., although the deviation of Belgium would be increased slightly by this adjustment.

Correction for net payments abroad should likewise be made. If countries making such payments appear in this study as downward deviates, the adjustment would tend to reduce the deviation between actual and theoretical income. If remitting countries were upward deviates as in the case of Argentina, such adjustment would tend to increase their deviation. The revision of the data along these lines and the recalculation of the regression coefficients should produce more precise results, although not necessarily smaller deviations in all cases.

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[7] Bunker fuel has been allocated on the basis of merchant fleet tonnage owned, expressed as a national percentage of world total.

[8] Colin Clark, *National Income and Outlay* (London, 1937).

[9] Estimates of national income for the U.K., 1935-38, were taken from A. L. Bowley, *Studies in National Income*, and averaged over this period. This average income was then converted to dollars at the average exchange rate for the period and compared with Clark's estimate of the U.K.'s national income in IU's to obtain the conversion factor, IU's/$.

[10] Nicholas Kaldor, Appendix C, *Full Employment in a Free Society*, by Sir William Beveridge (New York, 1945).

Another important cause of deviation in either direction is probably different efficiencies of utilization of energy in relation to income. On the basis of U.S. experience, which is similar presumably to the experience of other industrial countries, a larger amount of energy is consumed per dollar of value added by manufacture in the iron and steel and heavy chemical industries than in most other processing industries. Countries consuming comparatively important quantities of energy for such purposes would tend to produce a lower income than would be expected from the average relationship between income and energy for this sample. Such an interpretation remains at the moment to be supported or refuted by further research but it should be pointed out as a coincidence if nothing more that both Norway and Belgium-Luxembourg, two of the largest downward deviates, have important smelting industries, of light and heavy metals, respectively. Deviations may also occur in part because efficiencies of utilization of energy differ with respect to the relative age and condition not only of the prime movers but also of the machinery they drive.

The numerical results appear to indicate that on the whole the objectives set forth earlier are most nearly achieved when national income in international units is treated as a function of energy used for productive purposes (excluding human energy), employed population, and head of livestock. Although the function $I = f(P,E,L,A)$ exhibits a slightly lower standard error of estimate, it does not provide a satisfactory measure of the relationship between land and income. Both livestock functions produced more satisfactory estimating equations than were obtained with the other functions.

One of the functions, $I = bP^kE^j$, is of particular interest in that it closely resembles the Douglas production function, $P = bL^kC^j$, where P refers to value added by manufacture, L to the number of people employed, and C to the value of capital used in manufacturing industries. Those who are familiar with the work of Professor Paul H. Douglas and various associates will recognize that employed population as defined in this study and labor as defined in the above production function are rather similar concepts since both measure quantity of labor. A further resemblance between the functions may be found in the similarity of concept of energy used for productive purposes, and capital. Capital has generally been defined as fixed capital, such as buildings, machinery, etc. (excluding value of land), and value of inventories of working capital. Energy (excluding human) is an index of a certain kind of capital; namely, energy-consuming capital of all kinds. Energy and capital so defined are not equivalent but they are closely related, both measuring in different ways the productive apparatus of society. The dependent variable in the Douglas Function, P, which refers to value added by manufacture, is conceptually related to net national income as used in this study in that both measure net production.

While there are important differences of definition between the production and income studies the points of similarity noted above lend some interest to a comparison of the respective numerical results. The values of the parameters obtained with the functions $I = f(P,E)$, $I = f(P,E,A)$, $I = f(P,E,L)$, and $I = f(P,E,L,A)$ in the present study and selected values for corresponding parameters obtained by Professor Douglas in his cross-section studies are compared in Table VII.

TABLE VII

	Production Function			Income Functions			
	U.S.A.[*] 1919	Australia[†] 1936–1937	Canada[‡] 1937	I= f(P,E)	I= f(P,E,A)	I= f(P,E,L)	I= f(P,E,L,A)
				Twenty-four areas, 1937			
k	0.76	0.48	0.43	0.29	0.19	0.23	0.35
j	0.23	0.51	0.58	0.59	0.58	0.50	0.48
λ	—	—	—	—	—	0.28	0.41
α	—	—	—	—	0.13	—	−0.18

[*] Gunn and Douglas, "The Production Function for American Manufacturing in 1919," *American Economic Review*, March, 1941, p. 73.

[†] Gunn and Douglas, "The Production Function for Australian Manufacturing," *Quarterly Journal of Economics*, November, 1941, p. 121.

[‡] Daly and Douglas, "The Production Function for Canadian Manufactures," *Journal of the American Statistical Association*, June, 1943, p. 180.

The above results for Australia, Canada, and the U.S.A. were selected from among a number of others because they refer to periods nearest 1937. The seven values of k and j can be classified into three groups: the U.S.A. with high valued k and low valued j; Australia and Canada with intermediate values of k and j; and the remaining low k and moderately high j values reported in this study. For three of the income functions, however, the appropriate comparison would seem to be between j in the Douglas studies and suitable combinations of j, λ, and α in the income studies because labor works with all three nonlabor factors, not energy alone. Although it is possible, of course, that the differences between the two sets of parameters are coincidental and without economic significance, attention is called to the possibility that these results reflect differences in the marginal productivity of labor and factors co-operating with labor in the three area groups. In the manufacturing industries of the U.S.A., Australia, and Canada where the quantity of capital and energy used per worker is high, k is high and j low; but when the total economies of these countries are considered in relation to those of twenty-one other areas most of which have little capital and consume comparatively little energy per worker the k's are lower and the j's, λ's, and α's taken together are considerably higher.

One of the most interesting results obtained is the close approximation of the sum of the parameters to unity. Similar results have characterized the Douglas production function which appears, on the basis of several studies of manufacturing industries, to approximate a homogeneous function of the first degree. In the Douglas studies, the sample varied but the function remained the same. In the present studies, on the other hand, the sample remains the same but the function varies, for income is expressed as a function of energy and labor alone or in various combinations with land and livestock. The sums of the parameters of two of the resulting functions closely approximate unity; for $I = f(P,E,L)$ $j + k + \lambda = 1.013$ and for $I = f(P,E,L,A)$ $j + k + \lambda + \alpha = 1.060$. While none of the estimating equations obtained satisfy the mathematical requirements for homogeneous linearity, the function $I = f(P,E,L)$ closely approaches the fulfillment of such requirements, within the limits of random variations. The similarity in results obtained by Douglas for manufacturing industries of individual countries and by the present author for whole economies of widely differing countries would seem to indicate that the data measuring output and the factors of production used in the respective studies do not reject the hypothesis that a homogeneous linear function describes their relationships within the limits of statistical error.

II

In the preceding discussion little mention has been made of the underlying assumptions of this study, the limitations which they necessarily impose upon evaluation of the results, or of alternative procedures which may yield improved estimating equations. It is the purpose of this section to consider these matters and to present suggestions for facilitating the collection and processing of data required for calculating income by means of the functions reported in Part I.

The cross-section studies of national income presented above rest principally upon the following assumptions: (1) differences between observed and calculated values of income are due to random errors of measurement of the dependent variable or are random residual deviations produced by factors not included in the function; (2) the independent variables are free from such errors, the errors being confined to the dependent variable; (3) units of each independent variable have a constant intensity of use within each area and from one area to another; (4) units of each independent variable are homogeneous within each area and from one area to another. It is quite apparent that these assumptions are rather unrealistic. All of the variables are subject to the usual errors of measurement and manipulation although the independent variables are presumably less subject to error than the estimates of net national income reduced to international units. Furthermore, not all variables influencing income are explicitly represented in the functions. Thus subsurface capital in the form of mineral deposits, to the extent they are worked at all, appears only by implication through the energy and labor series. Similarly, all other forms of capital, including structures of various types such as office buildings, warehouses, docks, elevators, etc., are not explicitly stated in the functions, but again are merely implied by energy and labor.

A unit of labor in this study is defined to be a person employed, regardless of the number of hours worked per year. The quantity of labor attributed to any country may, therefore, differ considerably from that actually used. Moreover, no adjustment for differences in skill has been made, with the consequence that units of highly skilled labor such as medical practitioners and commercial aircraft pilots have been equated with units of unskilled native labor of backward areas. For most of the countries of the world this is not a serious problem because the labor force is preponderantly unskilled, but by including in the same function the more developed areas, where a larger portion of the national product has been devoted to education and the development of skills, further distortion may have been introduced.

Different kinds of livestock have been weighted in accordance with their physical weights on the basis of U.S. experience. This method of weighting, described in detail in Appendix A, is based on the assumption that income from each kind of livestock is proportional to physical weight in all countries studied and that weight ratios for the U. S. are equally applicable to these countries. It has also been assumed that units of each kind of livestock are identical with respect to physical weight, for all areas in the sample. Alternative methods of weighting could have been used, such as ratio to gross farm income or relative feed intake. It is doubtful, however, that data could be obtained which would permit the use of the gross farm income method for many of the countries in the sample. The weights according to relative feed intake are quite similar to the physical weight ratios and if the livestock index were computed on this basis it is unlikely that the results would be altered substantially. In view of the necessity for applying U. S. experience to foreign conditions, weighting by relative feed intake or physical weights seems less subject to error than weighting by ratio to gross farm income since the latter method is subject to widely varying market conditions in countries where markets exist, and is of questionable application elsewhere. Further research in this field may yield an improved livestock index but until that is done the present index may be taken as a reasonably good first approximation.

Cultivated land has not been adjusted for differences in fertility,[11] a fact which probably accounts in large measure for the relatively large standard errors of α and its negative value in one of the functions. Such an adjustment is imperative if a satisfactory relationship to income is to be found. The energy unit, however, the kilowatt-hour, is a physical constant measuring the same quantity of energy everywhere, but the assumption of a single rate for efficiency of utilization (20 per cent) discussed in Appendix A, however appropriate as an average, undoubtedly has contributed to inaccuracies in the energy estimates for countries where actual efficiencies may be considerably higher or lower. Further inaccuracies have probably been introduced in estimating the annual amount of energy developed by power animals, due primarily to differences in intensity of utilization from one country to another.

In evaluating this study, it is necessary to distinguish between the numerical results and matters of concept, method, and procedure. It has been the objective of this investigation to explore empirical relationships between economic series and to attempt the prediction of the unknown from the known. The logical relationship between income and energy, labor, livestock, and cultivated land appears to be quite obvious; that other variables, perhaps in greater number, may serve the same ends is not contested, but it should be pointed out that a practical estimating equation is obviously one for which data can readily be obtained and that the process of developing such an equation is a series of compromises between desired scientific precision in the end results and the state of the arts as it affects statistical reporting. The estimating equations developed in this study are offered only as first approximations, subject to improvements which may be anticipated from a number of directions: the sample may be altered to exclude countries for which there are no counterparts in the rest of the world, or appropriate areas may be added, including areas of the U.S.; refinements in the independent variables or new variables may be introduced; different national income estimates may be used, with due regard for concept and international comparability; and doubtless other improvements not at once apparent.

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[11] The author is deeply indebted to Mr. Colin Clark for estimates of land areas suitable for agriculture, taking into account temperature, rainfall, and irrigation. The present index of cultivated land should be considerably improved after adjustment for these factors.

It is not surprising to find that a single function of a limited number of common variables does not afford high precision estimates of national income for such divergent economies as the U.S., United Kingdom, and Germany on the one hand and the Balkan and Baltic States on the other. While the present sample is qualitatively representative of a wide range of degrees of economic development and therefore quite general in its coverage, this very quality makes it unrepresentative of the *remainder* of the universe with which we are primarily concerned. Preliminary experimental studies in which five of the largest energy consuming countries were deleted produced a sample which conformed more nearly to the remaining countries of the world, and which yielded somewhat better results. Although this sampling adjustment is a step in the right direction a further improvement might be made if additional countries of Western Europe and Japan were deleted. The fact that we have some knowledge of the remainder of the universe provides a starting point for improving the sample by deliberate bias. Such a procedure, on the other hand, has the disadvantage that a small number of observations, as in the present study, limits the number of deletions which can effectively be made without tending to increase the standard error of estimate. However, two degrees of freedom may be saved if labor and energy are combined and if land is deleted. A preliminary study with the function $I = f(E_t, L)$, where E_t is total energy used for productive purposes including human energy, yielded the best estimating equation yet obtained. This function has to its credit the practical advantage of requiring less data and is therefore much easier to use. Indeed, it may be presumed that at least two or three different estimating equations would have to be obtained, for best results, one for each group of countries. Stratification of the sample would have to be based on some objective standard of industrialization; for example, inanimate energy consumed for productive purposes per capita or some other previously excluded variable. To calculate the national income of any country not included in such samples would require the preliminary step of determining the group to which the country belonged and the equation most appropriate. Since most countries are comparatively undeveloped the choice of estimating equation in most instances would not be difficult. It would be necessary in any case for such cross-section studies to be revised at intervals of perhaps five years to adjust for changes over time, the frequency of revision depending on the rapidity of change. Meanwhile, the two functions in this study having the smallest standard errors of estimate $I = f(P,E,L)$ and $I = f(P,E,L,A)$ may be used for calculating income where only crude estimates are required. The parameters of these functions are only rough measures of the average income-effect of energy, labor, and livestock, and quite an unsatisfactory measure of the effect of land.

If this method of calculating national income is to be used for other periods and different countries, new estimates must be calculated for the independent variables. Total population and livestock censuses, or intercensal estimates, for many countries are rather widely published, although statistics on employed populations are more difficult to obtain. For primitive economies a fairly satisfactory measure of employed population can be obtained if it is assumed that only the very young and the very old do not perform useful work and if their number is subtracted from the total population. The remainder, after this adjustment, may be accepted for this purpose as the employed population. Because of the paucity of information on fuel consumption and the consequent detailed and time-consuming research necessary to estimate energy used for productive purposes as defined in Appendix A, a shorter procedure is suggested which, while less precise, may be used in calculating national income by this method.

Conceptually, the shorter method of estimating energy consumption differs from the longer method in the treatment of stock piles and processing losses. When stock piles and losses are ignored the estimates become measures of apparent consumption of energy used for productive purposes. Using the conversion factors reported in Appendix A, such energy estimates may be calculated as follows:

1. Convert data on net trade in all forms of energy (coal, lignite, petroleum, etc.) to kilowatt-hours.

2. Convert data on production of all raw fuels (omitting processed fuels) to kilowatt-hours. (Approximately 20 per cent of the energy content of petroleum is directed to nonenergy purposes, e.g., lubrication, or is lost. Therefore, only 80 per cent of the total net trade and production of petroleum should be counted as energy. Peat and fuelwood may be assumed to be used for domestic heating in most countries and therefore need not be counted except where it is known that these fuels form a substantial proportion of all energy used in industry and transportation.)

3. Animal energy may be estimated by converting to kilowatt-hours the number of head of animals used chiefly for power purposes; i.e.,

asses, mules, horses, etc. In addition, if it is desired to include human energy in the series, population data should also be converted to kilowatt-hour electricity equivalent.

The sum of 1, 2, and 3 above, expressed in kilowatt-hours, approximates energy used for productive purposes.

Production data may be obtained from the United States Department of the Interior, *Minerals Yearbook;* the Imperial Mineral Resources Bureau, *The Mineral Industry of the British Empire and Foreign Countries;* trade statistics from the latter source and, for coal and petroleum, from various issues of *International Coal Trade* and *International Petroleum Trade.* Statistics on hydroelectricity production in foreign countries are difficult to obtain and not always comparable, but when published are usually to be found in the official yearbooks. For careful correction of petroleum data to adjust for lubricant derivatives the *League of Nations Yearbook* is suggested for countries reported. Losses in coke and gas plants can be disregarded since such losses are negligible. Additional sources are reported in Appendix B.

It is quite apparent that the foregoing discussion is constructed on a great many assumptions, some quite formidable, and that the results are tentative and justify only very general conclusions. Nevertheless, a different line of attack on the problem of estimating national income or national product for certain areas has been suggested. The investigation has been conducted in a practical spirit and has been guided by the hope that a useful implement will be fashioned from the contents of the economic tool shed. In the hope that further research along these lines will be stimulated and in order to facilitate further investigation, the basic data for this study, a list of sources, and suggestions regarding a simplified treatment of the energy data have been included in this paper. It is believed the basic concepts have broader application and should be of interest to all who are concerned with estimating national income. Suggestions and criticism will be most welcome.

AMERICAN ECONOMIC ASSOCIATION

PROCEEDINGS OF THE SIXTIETH ANNUAL MEETING

Chicago, Illinois
December 27-31, 1947

PROCEEDINGS OF THE AMERICAN ECONOMIC ASSOCIATION

ANNUAL BUSINESS MEETING, DECEMBER 30, 1947
HOTEL SHERATON, CHICAGO, ILLINOIS

The business session of the 60th Annual Meeting of the American Economic Association was held in Hotel Sheraton, Chicago, Illinois, December 30, 1947, at 5:00 P.M. President Paul H. Douglas presided.

In the introductory remarks, President Douglas described what he considered three forward steps in the progress of the Association taken during the current year; namely, (1) the publication of the *Review of Economics* volume sponsored by the Association and edited by H. E. Ellis, (2) the institution of the F. A. Walker and J. B. Clark awards, and (3) the establishment of a Committee on Public Issues as an instrumentality permitting the expression of the opinion of economists on public issues without committing the Association as such. Professor Douglas also commented on other activities of the Association and described the general character of the program of our current meetings.

The unavoidable absence of P. T. Homan, Managing Editor of the *Review*, and of several chairmen of important committees who had promised reports prompted the Secretary, J. W. Bell, to include in his report a general account of this year's operations as well as some of the problems now facing the Association. Despite the widening scope of our activities and the rising costs of functioning in all departments we are resisting current pressures for increasing membership dues, for charging members for the 1948 *Directory*, and for levying costs incidental to the holding of the annual meetings directly on members by charging registration fees. Fortunately, our financial condition permits us to do this. An account of the various Association activities may be found in the following reports printed in these *Proceedings*.

Report of Secretary, page 529.
Report of Treasurer, page 544.
Report of Finance Committee, page 548.
Report of Auditor, page 550.
Report of the Managing Editor, page 555.
Reports of Standing and Special Committees:
  Republications (H. S. Ellis, Chairman), page 558.
  Review of Economics (J. J. Spengler, Chairman, and H. S. Ellis, Editor), page 560.
  Honors and Awards (F. C. Mills, Chairman), page 563.
  Public Issues (S. H. Slichter, Chairman), page 564.
  Teaching of Economics and Training of Economists (Horace Taylor, Chairman), page 568.
  Classification (J. W. Bell, Chairman), page 570.
Reports of Council Representatives:
  American Council of Learned Societies (F. H. Knight), page 573.

Social Science Research Council (J. J. Spengler), page 575.
National Bureau of Economic Research (D. H. Wallace), page 577.

The results of the mail ballot for the election of new officers were reported by the Election Committee, and President-elect J. A. Schumpeter was introduced by the retiring president.

In his response President Schumpeter graciously acknowledged the honor which election to this office implied and sketched briefly some of the plans which he had in mind for the ensuing year. As the next item on the agenda concerned a tribute to Irving Fisher (in memoriam), Professor Schumpeter took occasion to review the life and work of this past president whose death occurred in February of last year.

The item on the agenda entitled, "Ideas for the Continued Health of the Association," called for suggestions from the floor. Various comments were made, chiefly concerning the character and place of the annual meetings. Some resolutions were proposed concerning joint meetings with allied associations, and the position which the Association should take with respect to academic freedom.

Professors Douglas and Bell explained that meetings of our Association since 1941 had perforce to be scheduled independently, and when and where government regulations and transportation and hotel facilities permitted; that joint sessions with other associations were scheduled only when other associations found that they could hold local or regional meetings at the same time and place and still conform to the existing limitations; that even now the hotel situation has not entirely cleared, and that we are forced by circumstances to make our decisions often without the opportunity to consult with the officers of other associations because of the long-run commitments being made by other learned groups like the A.A.A.S., A.H.A., and the M.L.A.

Plans were announced for the annual meetings to be held at Hotel Cleveland, Cleveland, Ohio, December 28-30, 1948, and for Christmas, 1949, in the Grand Central group of hotels in New York City. It was pointed out that facilities will undoubtedly be available in both places for many joint meetings and perhaps in the case of New York for a meeting of all the allied social science groups on the scale experienced in 1941. Also, in Cleveland, there will undoubtedly be an opportunity for the secretaries of the social science groups to confer and to plan a schedule of joint and partially joint meetings for future years.

A resolution presented by A. F. Hinrichs proposing joint meetings with the American Statistical Association and outlining a specific program for 1949 and later years was not voted upon since in the discussion it appeared that numerous other proposals of like character were favored by members on the floor and that present plans of the Executive Committee embraced the general purpose of these proposals. However, on motion of R. T. Bye it was VOTED that the sense of this meeting be expressed as sympathetic with the idea of joint meetings with related societies and that, insofar as feasible, programs of common interest to the societies concerned can be arranged, and that this statement be referred to the program committee for its consideration.

With respect to academic freedom, it was VOTED that the statement adopted by the Executive Committee at its meeting on December 27 be approved and that such a statement be sent by the Committee to the administrations of all colleges and universities having economic departments.

The certification of election of new officers was presented by the Secretary as follows:

In accordance with the bylaws on election procedure, I hereby certify the results of the recent balloting, and present the reports of the Nominating Committee and the Committee on Elections.

The Nominating Committee, consisting of I. L. Sharfman, University of Michigan, Chairman, Robert P. Brooks, University of Georgia, Robert D. Calkins, Columbia University, Warren B. Catlin, Bowdoin College, Richard S. Howey, University of Kansas, and Faith M. Williams, United States Department of Labor, presented to the Secretary the list of nominees for the respective offices:

For President
Joseph A. Schumpeter

For Vice-Presidents	For Executive Committee
Ewan Clague	Bernard F. Haley
Morris A. Copeland	Richard B. Heflebower
William H. Kiekhofer	Hazel Kyrk
Simeon E. Leland	Richard A. Lester

The Committee on Elections (Ernest A. Johnson, Lake Forest College, Chairman, Charles W. Anrod, Loyola University, and James Washington Bell) prepared biographical sketches of the candidates, and ballots were distributed early in November. The canvass of ballots was made on December 17, 1947, and the results were filed with the Secretary.

From the report of the Committee on Elections, I have the following information:

Number of envelopes without names for identification	14
Number received too late	70
Number of defective ballots	—
Number of legal ballots	2,180
Number of returns from the mail ballot	2,264

On the basis of the canvass of the votes cast, I certify that the following persons have been duly elected to the respective offices:

President (for a term of one year)
  Joseph A. Schumpeter
Vice-Presidents (for a term of one year)
  Morris A. Copeland
  Simeon E. Leland
Members of the Executive Committee (for a term of three years)
  Bernard F. Haley
  Richard A. Lester

James Washington Bell, *Secretary*

Professor M. H. Hunter presented the following report of the Committee on Resolutions:

WHEREAS, The members of the American Economic Association, meeting in the 60th Annual Session at the Sheraton Hotel, Chicago, December 28-31, 1947, have been accorded courtesies necessary for a successful conference; have had individual physical comforts provided; have been privileged to participate in a searching and stimulating program; and

WHEREAS, It is recognized that the above has entailed no small amount of thought and effort on the part of many persons; and

WHEREAS, The members of the American Economic Association wish formally to acknowledge their appreciation of such services; therefore be it

Resolved, That the Secretary extend the appreciation of the members of the Association to President Paul H. Douglas and to those who co-operated with him in arranging an inspiring and challenging program and to those who co-operated with papers and discussions to make the program possible; and be it further

Resolved, That the Secretary extend an expression of our gratitude to the officers of other associations meeting concurrently for the privilege of sharing in their programs which so ably complemented that of the American Economic Association; and be it further

Resolved, That the Secretary extend the thanks of those in attendance to all those who shared in the responsibility in making local arrangements to the end that those things which made for our comfort and convenience had been anticipated and provided. In this regard especial thanks are due to Professor George J. Cady, of Northwestern University, Chairman of the Committee on Arrangements, and to Frank P. Breckinridge, of Breckinridge and Company and Leverett S. Lyon, Chief Executive Officer of the Chicago Association of Commerce, other members of this committee; to Mr. Irmeling, of the Hotel Association of Greater Chicago, for securing hotel accommodations; to Mr. Erwin Boehmler, our representative, and to the associates of the Julian J. Jackson Public Relations Agency for their effective handling of press relations; and be it further

Resolved, That our thanks be extended to the managers and employees of the Sheraton Hotel, The Knickerbocker, and other hotels for making available their facilities for these meetings.

Merlin H. Hunter, *Chairman*
Stanley E. Howard
Vernon A. Mund

Adjourned

REPORT OF THE SECRETARY FOR THE YEAR 1947

The minutes of the Executive Committee are included as a part of the Secretary's Report in order to present to the members a full and official account of the operations of the Association. Thereafter follow brief comments on the past, present, and proposed activities of the officers and committees.

1. Minutes of the second meeting of the 1947 Executive Committee, Princeton, March 28-29, 1947:

The second meeting of the 1947 Executive Committee was held at the Princeton Inn, Princeton, New Jersey, March 28-29, 1947. The meeting was called after luncheon and was continued through Friday and Saturday, adjourning at noon on the latter day. The following were present: President P. H. Douglas, presiding, J. W. Bell, Eveline M. Burns, J. S. Davis, H. S. Ellis, E. A. Goldenweiser, S. E. Harris, P. T. Homan, John Ise, B. W. Lewis, I. L. Sharfman, A. R. Upgren, and, by invitation, S. E. Leland, J. J. Spengler, and D. H. Wallace. The following members of the Nominating Committee attended the meeting of the Electoral College on Friday evening: R. D. Calkins, W. B. Catlin, and Faith M. Williams.

1. *Minutes.* The minutes of the 59th Annual Business Meeting held at Atlantic City, January 25, 1947, and of the second and third meetings of the 1946 Executive Committee, and of the first meeting of the 1947 Committee were APPROVED, subject to editorial changes as set in galley proof.

2. *President's Remarks.* In his introductory remarks, President Douglas presented a brief preview of the items included on the agenda and called attention to certain changes in the order of business made to accommodate the convenience of some of the members reporting. The minutes do not, therefore, follow a strictly chronological order. Professor Douglas also sketched in general terms an outline of the program for the next annual meeting to be held in Chicago during the Christmas recess of the current year.

3. *Reports on Publications.*

a) *American Economic Review* (P. T. Homan). In connection with the report of the Managing Editor, Professor Homan indicated that the budgeting provisions for next year were not made in contemplation of any substantial changes in format. Such improvements, discussed at length in previous meetings of the Executive Committee and by the Editorial Board, have been delayed during the war years. Samples of larger pages with more liberal margins and new type face were exhibited. At present, costs of these improvements would amount to about $185 per issue or $745 per annum. Professor Homan did not recommend the adoption of definite proposals, but moved that prospective changes in format, type, cover design, etc., of the *American Economic Review* be postponed until a more propitious time. It was VOTED that the Editor submit definite proposals for the improvement of the format for the *Review* next year.

Professor Homan reported that a gratifying number of suggestions had been received at his office in response to the request for names of possible reviewers of foreign economic literature. This request was one of four items included in the March 4 mailing to members.

b) *Papers and Proceedings of 1946 and Directory of 1948* (J. W. Bell). The contents and make-up of the volume of *Papers and Proceedings* was reviewed and the schedule of dates when manuscript and galley proof were received and sent to the printer was submitted. Attention was called to the difficulties we are now experiencing with paper stock and to the fact that the present volume of *Papers and Proceedings* may have to come out in even heavier paper than now used—fifty pound instead of forty-five pound—despite original plans of publishing this volume on thirty pound stock. Questions were raised with regard to the scope and content of the 1948 *Directory* and concerning new material which might be included in that volume; for instance, listing in the appendix graduate students awarded fellowships and economists in selected foreign countries. Progress was reported in the reclassification of fields, and a proposal to classify our mailing list stencils according to class of members was discussed. The Secretary announced the publication of the revised information booklet and the separate reprinting of the *Proceedings* for the use of officers, members of committees, *et al.*

c) *Committee on Republications* (H. S. Ellis). The renewal of our contract with the Blakiston Company was discussed in the light of the financial results of the first three volumes already issued for this series and the fourth volume now on the way. It was VOTED to authorize H. S. Ellis, Chairman, and J. W. Bell to renew the contract along the lines of the agreement drawn in May, 1941. Professor F. A. Lutz was appointed a member of the committee, to succeed K. L. Anderson.

4. *Report of the Secretary-Treasurer* (J. W. Bell). The results of the Atlantic City meeting were reported. Attendance was around 2,000 to 2,500 and registration 1,704. A list of 1,667 names was typed from the registration cards and is on file. A breakdown of this list shows 985 members of the A.E.A., 470 of the A.S.A., and 227 members of both associations.

A financial accounting shows receipts of $865.80, expenditures of $2,505.77 (not including the mailing of the preliminary announcement, which cost $240.00), and a net outlay of $1,639.97. Expenses of the joint program were allocated between the associations meeting concurrently.

Our experience with the Employment and Personnel Register was gratifying. Some 56 institutions listed 100 to 150 jobs available, and over 200 applicants filled out our registration forms. Two hundred lists of jobs available were distributed at Atlantic City and some 350 by mail; 200 mimeographed copies of the list of applicants were run off and the supply was exhausted through mail inquiries.

The cost of the special mailing to members on March 4, containing the announcement of the availability of the employment and personnel lists, the call of the Nominating Committee for suggestions, and the Managing Editor's request for reviewers for foreign literature, was $327 ($500 was authorized for this purpose). The response from this circularization of the membership has been far beyond anticipation.

Since reporting the number of members and subscribers as of December 7, 1946, there has been a net gain of 227 annual members and 78 junior members (as of February 28, 1947).

We have ordered printed 7,600 copies of the March number of the *Review* and 7,700 of the *Proceedings*.

We are continuing to repurchase out-of-print numbers, at least until we catch up with the demand of foreign and library subscribers.

Bank balances of the Association as of March 25 were over $16,000. Since a number of projects involving substantial expenditures remain to be determined, the Treasurer considers it advisable to hold a rather strong cash position.

The Treasurer called attention to W. H. Steiner's article on analysis of our investment holdings published in the *Proceedings* as an adjunct to the report of the Finance Committee.

5. *Committee Reports.*

a) *Teaching of Economics and the Training of Economists* (Horace Taylor). Professor Taylor was unable to be present and no further reports of this committee have been received.

b) *Economic Opinion and Public Policy* (C. D. Edwards). Professor Davis reported on behalf of the committee, stating that the brief report before us puts up to the Executive Committee the whole matter of dropping or implementing the report of December 5, 1945. After protracted debate, it was VOTED to adopt the following minute, drafted by Professor Davis and Dr. Goldenweiser:

After extended discussion of the issues raised by the last two reports of the Corwin D. Edwards committee, the Executive Committee approved prompt action along the general lines proposed by that committee, particularly in the Appendix to its report dated December 5, 1945. The Executive Committee hereby authorizes and requests the President of the Association to appoint, for this purpose, a Committee on Public Issues to consist of five members for a period of three years. This committee shall, with the approval of the President and Secretary, devise a specific plan of operations, and shall then proceed to operate under it. Among other things, this committee is empowered, on its own initiative or on the suggestion of members, (1) to arrange for the preparation of statements on issues of public policy and (2) to formulate questions on which the entire membership of the Association, or specialized groups therein, would be circularized, and to report the results of such circularization to the President, who shall have the authority to decide whether or not to give the results publicity and at what time. The Executive Committee suggests consultations with an expert on the formulation of questions for opinion polls and the presentation of the results. The Executive Committee authorizes an initial appropriation of $1,000 for the purposes of the Committee on Public Issue.

c) *Research* (S. E. Leland). The proposal that the A.E.A. sponsor a volume on sources involving the preservation and use of the records of war agencies was submitted in the report of the Subcommittee on OPA Records (R. B. Heflebower, Chairman). The project was described in greater detail by D. H. Wallace. After discussion, it was VOTED that the Research Committee be authorized to explore the possibilities of securing financial support for this project and, if successful, to proceed with it. The Executive Committee had approved the recommendations in principle at Atlantic City in January.

Professor Leland described the questionnaire sent out by the committee last year and analyzed the results of the responses received. The stimulation of research is universally approved, but there is strong feeling that access to publication outlets is limited. The committee recommends the Association re-establish a monograph series such as that published before 1911. It was VOTED that a committee of three be set up to investigate costs and the feasibility of publishing a monographic series and that the project be considered in the light of competing projects of the Association now under way. President Douglas appointed the following members of the committee: from the Research Committee, J. J. Spengler, from the Board of Editors, P. T. Homan, and the Secretary, J. W. Bell.

d) *The Review of Economics* (J. J. Spengler and H. S. Ellis). Professor Spengler recounted the events transpiring since the action of the Executive Committee last spring when the *R.O.E.* project was first approved. Since no financial support is forthcoming from the Rockefeller, Carnegie, and Falk Foundations, and since a recent appeal to the American Philosophical Society was also ineffective, the committee recommended that we go ahead on our own resources.

Professor Ellis reported that we had already taken steps in line with the plans set forth in the committee's report which had been submitted and approved at the January meetings. The prospectus of a volume of thirteen chapters was prepared and twelve authors have already accepted the assignments. Four commercial publishers are eager for the contract for publishing the volume—all on favorable terms.

It was VOTED to authorize the editor to proceed with the project and an appropriation of $7,700 was substituted for the $7,500 previously authorized. President Douglas appointed a committee consisting of H. S. Ellis, J. J. Spengler, and J. W. Bell to help select a publisher and draw up terms of agreement.

e) *Honors and Awards* (S. H. Slichter.) Professor Slichter was unable to be present.

Professor Douglas submitted a proposal that the Association establish two awards in recognition of distinguished American contributions to the body of economic thought and knowledge: (1) a gold medal to be awarded not more frequently than once every five years to the living economist who in the judgment of the awarding body has during his career made the greatest contribution to economics; and (2) a silver medal to be awarded biennially to that American economist under the age of forty who is adjudged to have made a significant contribution to economic thought and knowledge.

It was VOTED to authorize the awarding of two medals as described above and to designate the first the Francis A. Walker Gold Medal and the second the J. B. Clark Silver Medal. It was VOTED to implement this motion by authorizing the President to appoint a Committee of Selection consisting of six members with initial terms of two, four, and six years, the committee thereafter constituting a body with members rotating in office and serving six-year terms. This committee is to report its recommendations each year in which awards are to be made to the electoral college which will, in turn, make the final selection in the same manner in which they nominate the president of the Association. The electoral college will have the power to add new names to the panel for the Committee on Selection of Honors and Awards. In a later mail ballot it was VOTED to substitute silver and bronze for the gold and silver medals, respectively.

f) *Nominations* (I. L. Sharfman). Professor Sharfman reported that some 300 circulars were returned in the relatively short time intervening since the general mailing to our membership was sent out on March 4. Many returns were sent by special delivery and air mail. Of these, some 107 names were suggested for the office of president, 206 for vice-president, and 266 for Executive Committee. Professor Sharfman considers it highly desirable that the procedure initiated this year be continued but that the mailing be sent out earlier, say January 15, to be returned by March 1, or in ample time to be analyzed before the spring meeting of the Executive Committee.

From the panel of names compiled by the chairman from the mailing solicitation and other sources, the Nominating Committee selected a short list of names which they recommended for consideration by the Electoral College. In attendance at the meetings of the Nominating Committee were: I. L. Sharfman, Chairman, R. D. Calkins, W. B. Catlin, Faith M. Williams. R. P. Brooks and R. C. Howey were absent. The members of the Electoral College then proceeded to ballot for the office of president. After the nomination was made, the Secretary was instructed to notify and receive the nominee's acceptance.

The nomination of the Association's representatives to the Social Science Research Council proceeded along similar lines with the following results: to succeed himself, J.

J. Spengler, for the term 1948-50, and to fill out the unexpired term of N. J. Buchanan, W. B. Stewart, for the term 1947-48. (H. A. Innis is the Association's third representative on the Council—elected last year for the term 1947-49.)

6. *Report of Council Representatives.*

a) *A.C.L.S.* (F. H. Knight). In the absence of Professor Knight, the Secretary, J. W. Bell, reported briefly on the activities of the A.C.L.S., called attention to the revised draft of the reorganization plan of the Council which had been previously circulated to the members of the Executive Committee, and asked for ratification of this plan. It was VOTED to put the American Economic Association on record as approving the plan of organization proposed. Since thirteen constituent societies had already approved this proposal, this action merely serves to put the Association on record as favoring the move.

b) *S.S.R.C.* (J. J. Spengler). The report of our representative on this Council was submitted in galley proof. Professor Spengler supplemented this report with a few remarks on the further development of the work on the committees and of the relation of our Association to these activities. He suggested that the liaison be improved.

c) *N.B.E.R.* (D. H. Wallace). Dr. Wallace described the change made in the composition of the Board (e.g., its enlargement from thirty-five to forty-two); the list of new institutions added (viz., the Institute for Advanced Study, Northwestern University, University of Toronto, and the Economic History Association); the addition of several new members-at-large representing commerce, heavy industry, etc.

7. *Committee on Foreign Honorary Members* (J. S. Davis). No report from this committee was due at this time, but the membership of the committee was made known (J. S. Davis, Chairman, A. H. Hansen, and Jacob Viner).

With the addition of the three names added in last year's election, there are at present sixteen living honorary members. It is understood that new selections will be made by the Executive Committee next year.

8. *The 1947 Annual Meeting.* The arrangements for the 1947 meeting to be held at the Sheraton Hotel, Chicago, December 28-31, were further described and some discussion took place with regard to the program.

It was VOTED to authorize calling the annual meeting for 1948 during the Christmas recess at Cleveland, Ohio.

9. *New Business.*

a) Professor J. S. Davis spoke briefly on the matter concerning the Bureau of Agricultural Economics which was submitted at the January meeting. He did not consider it advisable that the Association take any action.

b) Professor S. E. Harris read a draft of a resolution which had been drawn up in collaboration with Faith M. Williams concerning the budget policy affecting the Bureau of Labor Statistics and other government agencies. The question was raised as to the appropriateness of referring this matter to the new Committee on Public Issues. After discussion, it was VOTED to authorize E. A. Goldenweiser to draft a general statement expressing the sentiments of the members of the Committee present. This draft was subsequently circulated and a final revision was made in the light of responses received. It follows:

> The Executive Committee of the American Economic Association is profoundly disturbed by reports in the press that many essential series of statistics and many vital fields of research by the federal government will have to be curtailed as the result of reductions in appropriations for the agencies which have charge of them. The Committee is in accord with the policy of curtailing government expenditure at a period like the present. But this statement itself is based on considerations involving the use of statistics, the prompt and continuous availability of which appears to be in peril. It is impossible for government, business organizations, or individuals to make their plans and to conduct their operations in a manner best calculated to maintain employment and prosperity without access to basic figures currently compiled by the government or the results of investigations that throw light on the economic activity of the country. Statesmen, businessmen, as well as historians, teachers, and students, depend on this material for the effective performance of their tasks. Once a gap is permitted to occur in these series it can never be filled. The damage is irreparable.
>
> Congress has established a Council of Economic Advisers for the purpose of keeping the Executive and Legislative arms of government advised of current economic developments and making recommendations about national economic policies. This vital duty cannot be performed adequately without access to current and complete data on the trend of events. Discontinuance or curtailment of statistical series which provide the basis for the formulation of economic policy, both public and private, would seriously

handicap the country in determining a course of action most likely to result in sustained prosperity. The cost of these services is literally negligible in comparison with the purposes which they serve. A decline in economic activity which might result from the absence of adequate information would cost the people through the loss of income and the government through decline in tax revenue many hundreds of times the amount of money that could be saved by reducing the budgets of the agencies which produce the information.

To repeat, the Executive Committee certainly does not oppose legitimate economies in the conduct of our public agencies. On the contrary, it believes that such economies can and should be made. But for the reasons which have been stated it hopes that a way will be found to preserve the continuity of data which constitute the backbone of the nation's public and private economic policy and a record of its progress.

The above statement is not to be construed as in any way committing the American Economic Association as such. It is an expression of the convictions of the members of the Executive Committee, who authorized the statement to be drafted at a meeting held at Princeton, New Jersey, March 29, 1947, and it is believed by them to be shared widely by other members of the profession.

c) *American Economic Review* (P. T. Homan) (see 3*a*). A last minute announcement was made by P. T. Homan to the effect that he has resigned from Cornell University to accept a position on the staff of the President's Council of Economic Advisers in Washington. Dr. Homan proposes to continue on an interim basis with recognition of the question which this situation presents; namely, should the editorship continue to be associated with the person or should it go along with an academic post?

The meeting was adjourned Saturday noon, March 29, 1947.

2. Minutes of the third meeting of the 1947 Executive Committee, Chicago, December 27, 1947:

The third meeting of the 1947 Executive Committee was called at the Hotel Sheraton, Chicago, Illinois, December 27, at 2:15 P.M. President Paul H. Douglas presided. Other members present were: Bell, Goldenweiser, Homan, Ise, Lewis, and Upgren, and, by invitation, Schumpeter, Leland, and Carver. Absent were Burns, Ellis, Wilcox, Davis, and Sharfman.

1. *Minutes of Meetings of March 28-29, 1947.* The minutes of the Princeton meeting of March 28-29, 1947, were approved as mimeographed and distributed (May 2, 1947). The minute pertaining to the status of the Managing Editor was discussed but remained unchanged. Professor Homan proposed that the matter be referred to the incoming administration.

2. *Ratification of Mail Ballots.* Two actions of the Executive Committee taken by mail ballot were ratified. These actions concerned the publication of the report of the *ad hoc* Committee on the Webb-Pomerene Act, and the election of the medalists nominated by the Committee on Honors and Awards.

3. *President's Report (P. H. Douglas).* President Douglas, reviewing the activities of the year, commented on three innovations; namely, (1) the materialization of the volume on *Review of Economics;* (2) the establishment of a Committee on Public Issues as a method of expressing expert opinions of our members without involving the Association itself; and (3) the establishment of the Francis A. Walker and John Bates Clark awards.

Two matters upon which President Douglas recommended immediate action concerned (1) the criticism by outsiders of the choice of textbooks, and (2) aid to foreign scholars.

After some discussion the following statement, drafted by Professor Upgren, was VOTED: "In annual meeting held in Chicago, Illinois, December 30, 1947, the members of the American Economic Association record their continued affirmation that university and college teachers must have the free and untrammeled right to select for use in their teaching and research such textbooks and related materials as they, no others, believe will promote the purposes which their courses are intended by the teachers to serve."

It was suggested that a committee drawn from the panel of ex-presidents of the Association be constituted for the purpose of making public the position of the Association concerning academic freedom; to refer appropriate cases to the A.A.U.P.; and to give their own individual judgment on specific grievances referred to the Association.

With respect to foreign aid, it was VOTED that President Douglas' proposal be approved and implemented; namely, (a) to distribute subscriptions to our publications to foreign scholars, and (b) to invite contributions to a relief fund under the administration of a committee of the Association appointed for this purpose.

4. *Secretary's Report (J. W. Bell)*. The report of the Secretary was accepted as mimeographed and distributed. The following matters in particular were discussed by the Secretary; namely, the new contract with the Banta Publishing Company which in effect raises printing costs substantially a second time within the past two years; the revised rate schedule for advertising which in effect doubles rates charged advertisers in the *American Economic Review;* out-of-print numbers and our policy in buying back copies to meet demands of subscribers and members; foreign complimentary subscriptions administered by the Managing Editor and the Secretary; and, finally, the use of the mailing list by universities, foundations, publishers, and others.

5. *Treasurer's Report (J. W. Bell)*. The report of the Treasurer on the finances of the Association was reviewed and accepted. The finances of the Association are in a sound condition but increasing costs and extraordinary expenditures produced a substantial deficit. The Association's unappropriated surplus now stands at $68,147, compared to $68,888 as of December, 1946. However, the bookkeeping loss is $4,490. Since $3,700 represents additional appropriations, the net operating loss is $790. However, some expenses, such as the costs of striking the honorary award medals, logically chargeable to this year's operations, will be reflected in next year's results.

6. *Publication Reports.*

a) Managing Editor of the Review (P. T. Homan). The report of the Managing Editor was distributed and accepted and the budget for 1948 was approved. This budget is based on no enlargement of the *American Economic Review* and takes into consideration the increased costs involved in the new contract with the publisher. Two successors to P. T. Ellsworth and K. E. Boulding whose terms expire on the Editorial Board were elected; namely, Frederick H. Harbison and George J. Stigler.

b) Papers and Proceedings and the 1948 Directory (J. W. Bell). Professor Bell reported that the volume of *Papers and Proceedings* this year would be substantially smaller than the two preceding ones and reported publication plans worked out with President Douglas. Plans for the 1948 *Directory* were discussed (in particular, the classification of fields) and certain new features proposed for this volume; namely, a list of foreign economists, a list of graduate fellowships awarded, a list of department heads or chairmen. The costs of such a directory were estimated and the policy of free distribution versus sale was discussed. It was VOTED that the *Directory* be distributed free to members and that a charge of $2.00 or $3.00 be made to subscribers.

c) Republications Series. In the absence of Professor H. S. Ellis, Professor Bell reported for the Committee on Republications. Volume IV on *International Trade and Finance* is well under way while Volume V on *The Theory of Prices* is in preparation. An additional, separate volume on *The Scope and Method of Economic History* is contemplated with the Economic History Association as co-sponsors with the American Economic Association.

d) Review of Economics (J. J. Spengler, Chairman, and H. S. Ellis, Editor). Communications from Professor H. S. Ellis to J. J. Spengler and J. W. Bell were read describing the progress and the present status of the *Review of Economics*. This volume will soon be ready for the press.

7. *Reports of Other Standing and Special Committees.*

a) Foreign Honorary Members (J. S. Davis). The report of the Committee on Foreign Honorary Members was mailed in mimeographed form. Consideration of recommendations made in this report were deferred until the first meeting of the 1948 Executive Committee.

b) Honors and Awards (F. C. Mills). The report of the Committee on Honors and Awards was acted upon by mail ballot and such action was ratified in a previous vote.

c) Research (S. E. Leland). Dean Leland reported the activities of the Committee on Research during the past year and indicated that the committee was scheduled to meet during the session, and that he would elaborate this report at our next meeting. He described the work of the subcommittees on price control, labor, and solid and liquid fuels. The latter two have died out, but the subcommittee on prices is still active with R. B. Heflebower as chairman. The project of an index to materials in the National Archives has been given up on account of the great expense involved, and also because of the doubtful access of such materials to scholars. This committee is projecting a book of essays by members who held staff positions in the OPA. These essays deal chiefly with the lessons to be learned from the OPA experience. A roster of the names of economists familiar with the materials and participating in the OPA is being compiled, and it was suggested that such a list of specialists should be published perhaps in the *Review.*

It was VOTED to allow the unexpended balance of this committee's appropriation to run for another year.

d) Public Issues (S. H. Slichter). The Committee on Public Issues, scheduled to meet during the current session, asked to have their report postponed until the next meeting of the Executive Committee.

e) Teaching (Horace Taylor). A communication from the chairman of the Committee on Teaching was read, accepted, and filed.

f) Nominations and Elections (I. L. Sharfman). In the absence of the chairman, no report was made for the Nominating Committee and Committee on Elections.

g) Finance (R. C. Osgood); Auditor (David Himmelblau). The reports of the Finance Committee and of the Auditor were incorporated in the Treasurer's report above.

h) Classification (J. W. Bell). The report of this committee was postponed to the next meeting.

Meeting adjourned at 6:00 P.M.

3. Minutes of the first meeting of the 1948 Executive Committee, Chicago, December 31, 1947.

The first meeting of the 1948 Executive Committee was held in the Hotel Sheraton, Chicago, Illinois, December 31, 1947. The meeting was called to order at 9:15 A.M. President J. A. Schumpeter presided. Others present were: Bell, Copeland, Douglas, Haley, Harris, Lester, Lewis, Newcomer, and Upgren. Absent were Goldenweiser, Sharfman, and Wilcox.

Committee of Past Presidents on Academic Freedom. A committee consisting of J. S. Davis, I. L. Sharfman, and S. H. Slichter was appointed from the panel of past presidents to implement the vote taken at the Business Meeting concerning academic freedom. The motion was based on the statement adopted at the December 27 meeting of the Executive Committee.

Republications. On behalf of the Committee on Republications, Mr. T. H. Phillips, Vice-President of the Blakiston Company, made a statement concerning costs of the volumes thus far published and prospective profits. He suggested that we might safely draw $1,000 or more from the unearned profits if funds are needed to carry on the editorial work involved in issuing new volumes.

Managing Editor of the Review. The status of the Managing Editor of the *Review* was again discussed on the basis of the principles involved. It was decided to postpone further consideration of this matter until the April meeting of the Executive Committee.

Election of Foreign Honorary Members. In accordance with previous action taken, three additional foreign honorary members are to be elected in 1948. A straw ballot was taken on the list of names submitted by the Committee on Foreign Honorary Members, and the Secretary was instructed to complete the vote by mail ballot to the absent members.

Nominating Committee. Professor Schumpeter submitted a panel of names of members of the 1948 Nominating Committee. The following approved list will be announced (subject to their acceptance) in the March and June numbers of the *Review*: F. B. Garver, Chairman, Hazel Kyrk, Holbrook Working, E. S. Mason, Woodlief Thomas, and V. W. Bladen.

The 1948 Meetings and President's Expenses. Plans were discussed for the 1948 meetings to be held in Cleveland, December 28-30, inclusive. Suggestions were made for the chairman of our local arrangements committee.

In addition to the usual $50 honorarium made to the Presidential secretary, the President was authorized to draw up to $200 for out-of-pocket expenses.

Aid to Foreign Scholars. The subject of aid to foreign scholars was given further consideration, and it was VOTED that a committee be constituted to raise money in the name of the Association and to administer such funds through C.A.R.E. or other agencies. An appropriation of $100 was VOTED for the use of this committee (Mable Newcomer, Chairman, Gottfried Haberler, and others to be added). This committee is to report at the April meeting.

Research. Dean Leland continued his report of the activities of the Research Committee adding further details concerning the essays on the structure of the American economy which the Committee on Price Control is contemplating. This volume will not be concerned with the techniques of price control but rather with the structure of commodity markets, and the essays will be contributed by participants out of their own experiences. If a suitable editor can be found the committee may propose ways and means of carrying out the project.

No adequate way has been found of making up a roster of economists who have been in government service with the nature of their assignments. Dean Leland suggested that the questionnaire which is to be sent out in connection with the forthcoming *Directory* of our membership might include a question on government service. It was suggested that the Committee on Research frame specific questions appropriate for the directory questionnaire and that they try it out on a sample before adopting it.

Committee on Public Issues. In the absence of S. H. Slichter, A. P. Upgren read a report of the Committee on Public Issues. This committee has met twice (June 5 and December 30, 1947) thus far without any expense to the Association. Committee plans for the preparation of statements on important issues by *ad hoc* committees were discussed in the light of the oncoming presidential election. Two committees have already been established, one on economic stabilization and the other on international commercial policy. The committee recommends the appointment of others on one or more of the following: patents, concentration of economic power, labor, credit control, and conservation.

In expressing appreciation of the work done by the committee, it was VOTED to continue the appropriation of $1,000 made last spring for another year and an additional appropriation of $500 was authorized to finance the activities of a third *ad hoc* committee.

A.C.L.S. J. W. Bell was authorized to serve as alternate for J. A. Schumpeter at the forthcoming annual meeting of the A.C.L.S., January 28-29, Rye, New York.

Reports of Council Representatives. The following representatives had expected to be present to present oral reports: F. H. Knight (A.C.L.S.), W. B. Stewart (S.S.R.C.), and D. H. Wallace (N.B.E.R.). Written reports will be submitted and published in the *Proceedings*

Microcopying Program Endorsed. A communication from Dr. Edgar L. Erickson was read concerning the Committee on Documentary Reproduction of the American Historical Association. The Secretary was authorized to co-operate in any appropriate manner and to obtain further co-operation through Professor A. H. Cole of the Economic History Association and the S.S.R.C. committee of which he is chairman.

American Documentation Institute. The appointment of the Association member of the American Documentation Institute was left to the President and the Secretary.

Committee on Classification (J. W. Bell). The report of the Committee on Classification of the fields of economists for purposes of the *Directory*, the *Review*, etc., was discussed and modifications were proposed. A final draft will be submitted before publication and use.

Programs for 1948 Meetings (J. A. Schumpeter). A brief outline of the program for the coming year was presented by J. A. Schumpeter. A program committee will be constituted, central topics will be selected, joint sessions will be arranged on special subjects, and certain groups will be asked to organize their own sessions under our sponsorship. A session was suggested in which places on the program would be subject to open competition, a committee of judges to select three from those submitted. A fuller report on the nature of the program, with particulars, will be presented to the Executive Committee at its meeting in Princeton, April 9-10, 1948.

Meeting adjourned 1:30 P.M.

ACTIVITIES AND OPERATIONS

Annual Meetings. In last year's report your attention was called to the difficulties involved in determining our meeting places on a year-to-year basis. Competition with the A.A.A.S. and other large groups who plan their meetings some years ahead makes it highly desirable for us to do likewise. This year we decided upon a Chicago meeting despite the unavailability of the larger hotels because during the war interval we had continuously met in cities in the East. Our next (1948) meeting will be held during the Christmas recess in Cleveland, and for 1949 we have an option on the Grand Central group of hotels in New York City. Following this program will enable us thereafter to stagger our meetings outside of the competitive orbit of the larger associations, unless in the meantime they shift the pattern of their meetings.

Membership. The Report of the Secretary for 1944 contained a chart showing the growth of the Association's membership and subscribers from 1886 to

1945 (see May, 1945, *Papers and Proceedings*, page 459). Since then our membership has continued to grow at a fast tempo. Last year membership increased 917 (4,662 members and 2,161 subscribers, or a total of 6,823) and during the past year another 706 names have been added to the mailing list (667 members and 39 subscribers), making a total of 7,529 as of December 6, 1947. The breakdown of types of members is shown in the exhibit following this report. Especially notable in the rate of growth is that of the junior membership class. Members are again increasing more rapidly than subscribers. In earlier years subscribers represented from 12 to 20 per cent of the total, last year hitting a high of 31 per cent, and is now apparently declining. This year it shows a slight decrease to 29 per cent, due perhaps to the expiration of the Rockefeller supported American Library Association and the Library of Congress subscriptions.

We now print an edition of 8,200 copies of our publications. This number is stepped up to allow an inventory of about 500 copies. Even so, many numbers are now out of print, and we currently run repurchase advertisements in the *Review*.

Geographical Distribution. In the same source (May, 1945, *Proceedings*, page 460) a table shows the geographical distribution of members and subscribers for selected years from 1919 to 1943. During the war and postwar years marked shifts occurred, first from permanent to temporary addresses and more recently back to more permanent addresses. The exodus from Washington, however, has not been as great as might be expected and the concentration of members in the northeast and middle sections of the country continues to dominate the pattern. A revised count will appear in the 1948 *Directory*.

Publications. The progress of the *Review* and the activities of the Board of Editors are covered in the report of the Managing Editor. We are making some progress in advancing the date of the appearance of our publications, and our members may expect a prompter appearance of these issues in the future. The office of the Managing Editor has again been moved back to Washington, where Dr. Homan is serving on the staff of the President's Council of Economic Advisers.

The *Papers and Proceedings* of the 59th annual meeting of the Association, held at Atlantic City, January 23-26, was again published as a separate issue in May. Once more the volume proved to be especially large (780 pages), since it represents a fairly full record of all of the sessions. The Proceedings part of the volume (pages 703-768) was reprinted under separate cover and distributed to the officers of the Association and to others on request.

No handbook was published last year but a complete directory of the 1942 type is planned for 1948. Revision of the fields of economics is in process and sometime in March or April, 1948, a questionnaire of the "who's who" variety will be circulated to all members which will afford the basis of a classification of fields of interest or specialization.

The annual information booklet was re-edited and distributed to prospective members and to other persons interested in the purposes, organization, and activities of the Association. This booklet is particularly useful in soliciting new members and can be supplied in limited quantities to chairmen and heads of departments for distribution to colleagues and graduate students.

Photographs of past presidents Goldenweiser, Fisher, Gardner, and Davenport appeared as frontispieces to the numbers of the *Review* this year. Biographical sketches of deceased past presidents accompanied the photographs and references are made to available biographical accounts elsewhere.

The list of announcements of vacancies and applications for positions appearing in the back of each number of the *Review* elicits a large number of inquiries. The Secretary's Office is not geared to the performance of the functions of an employment agency, and we do little more than bring supply and demand factors together. The experiment at Atlantic City with the "Employment Register" proved highly successful, judged by the interest taken in the inspection of forms of jobs available and applications for positions which were on file and in the subsequent mailing of additional copies after the circular of March 4 reached our membership. These lists were exhausted in a few days after the announcement was made. An employment register will again be set up at the Chicago meeting this year where separate rooms will be made available for conferences.

Th mailing of March 4 referred to above also included requests by Chairman Howard S. Ellis of the Committee on Republications for suggestions of titles for new volumes and a request by Dr. Homan for names of possible reviewers of foreign economic literature. Both inquiries brought forth gratifying response. The Nominating Committee, I. L. Sharfman, Chairman, also solicited suggestions of names for the 1948 slate of officers. The committee recommends that like procedure be followed in the future.

Committee Activities.

Committee on Republications. Volume IV of this series (*International Economics,* H. S. Ellis and Lloyd Metzler, co-chairmen of the selection committee) is practically finished and should appear at an early date. The demand for Volumes II and III warranted reprinting these volumes and Volume I has also experienced such a consistent demand that the Blakiston Company has decided to publish another edition of 4,000 by a photo-offset process. The financial results of this republication venture promise to be favorable. Volume V on *Price Theory* is under way and other volumes are being contemplated, and we are considering the feasibility of publishing a volume on *The Scope and Method of Economic History* jointly sponsored by our Association and the Economic History Association. Professor Ellis is reporting in detail the results of the questionnaire sent out to our members in the March 4, 1947, mailing.

Review of Economics. Our efforts to obtain outside financial support for the publication of the proposed *R.O.E.* volume having failed, the Executive Committee decided at its meeting last January to go ahead with the project on our own resources. The committee was slightly reconstituted and Professor H. S. Ellis was appointed editor. He presented a prospectus which was approved by the Executive Committee at its spring meeting. Terms of agreement were then drawn up with the Blakiston Company (one of five favorable bids), and under the vigorous promotion of Professor Ellis, the volume has rapidly taken form as is indicated in the report of the Committee on *R.O.E.* It is now nearing completion and will soon be off the press. The sales will be made directly by the Blakiston Company and members of the Association will enjoy especially favorable terms in making their purchases at cost price. Contributors and reviewers have received compensation for their services and the editor was voted an honorarium. For these purposes an appropriation of $7,700 was made. Part of this expense may be recovered from royalties on sales to the general public.

Foreign Honorary Members. A report has been received from Professor J. S. Davis, Chairman of this committee, recommending for the consideration of the Executive Committee an enlarged panel of nominees. This report will be acted upon probably at the next meeting of the Executive Committee.

Honors and Awards. At its spring meeting, 1947, the Executive Committee authorized the appointment of a committee on selection (F. C. Mills, Chairman) which was to submit its recommendations of nominees for the Francis A. Walker and John B. Clark awards. The report of this committee has been received and acted upon by mail ballot of the Executive Committee and the first awards are being made at the annual meeting this year.

Research. The Committee on Research (S. E. Leland, Chairman) has been engaged in exploring the feasibility of securing financial aid for an ambitious project to preserve and make available for use the records of war agencies. The prospects of financing such a project are not bright.

Preliminary steps have been taken to compile a list of names of the staff members of the OPA who were chiefly responsible for collecting and using the data during the life of that agency. It is hoped that we may get from the members of such a roster suggestions of what materials will prove most valuable in research as well as ideas of worth-while projects which economists might investigate. If individual or co-operative efforts could be prompted by crystallizing ideas emanating from an interchange of information within this group, the committee will have accomplished something by the mere compilation of the panel of names.

Committee on Public Issues. At the spring meeting of the Executive Committee the Committee on Economic Opinion and Public Policy (C. D. Edwards, Chairman) submitted a brief report recommending that the issues raised by the committee's last two reports be dropped or implemented. Thereupon the Executive Committee authorized the appointment of a new Committee on Public Issues (S. H. Slichter, Chairman), empowering it to proceed with the development of a specific plan of operations along the general lines proposed by the Edwards committee. An initial amount of $1,000 was appropriated for the committee's use. To date a plan of operations has been adopted and two projects have been initiated and an additional appropriation has been made to finance a third project. No part of the appropriation has as yet been expended.

A final report, initiated by the Committee on Economic Opinion and

Public Policy—the report on the Webb-Pomerene Act by a subcommittee (E. S. Mason, Chairman)—was published in the December *Review* after having been approved by mail ballot of the Executive Committee.

Teaching of Economics and Training of Economists. The program of this committee's work has slowed down and the results of the past year's operations have not been very productive. However, Professor Horace Taylor, Chairman, in his report indicates that several of the subcommittees have held conferences and that reports may be forthcoming.

Nominations and Elections. The circular addressed to our membership March 4, 1947, produced a number of suggestions useful to the Nominating Committee. As indicated above, the committee suggests that like procedure be followed in the future. The results of the questionnaire have been reported by Professor I. L. Sharfman, Chairman, and this material will be placed in the hands of subsequent nominating committees.

Finance Committee and Auditor's Report. These reports are treated in connection with the Treasurer's Report.

Committee on Classification. A revised draft has been submitted to the members of the Executive Committee for their consideration at the Christmas meeting.

Reports of Council Representatives. No reports have been received but representatives are expected to be present to report in person.

Committees Appointed During the Year:

- Finance Committee
  - Roy C. Osgood, Chairman
  - Charles C. Wells
  - James Washington Bell
- Committee on Public Issues
  - Sumner H. Slichter, Chairman
  - Arthur R. Upgren
  - Corwin D. Edwards
  - Frank D. Graham
  - Myron W. Watkins
- Committee on Honors and Awards
  - Frederick C. Mills, Chairman
  - Raymond T. Bye
  - Stuart Daggett
  - Frederic B. Garver
  - Calvin B. Hoover
  - Theodore W. Schultz
  - James Washington Bell, *Ex Officio*
  - Joseph A. Schumpeter, *Ex Officio*
- Committee on Elections
  - Ernest A. Johnson, Chairman
  - Charles W. Anrod
  - James Washington Bell, *Ex Officio*
- Committee on Honorary Members
  - Joseph S. Davis, Chairman
  - Jacob Viner
  - Alvin H. Hansen
- Committee on Local Arrangements
  - George J. Cady, Chairman
  - Leverett S. Lyon
  - Frank P. Breckinridge
- Nominating Committee
  - I. L. Sharfman, Chairman
  - Robert P. Brooks
  - Robert D. Calkins
  - Warren B. Catlin
  - Richard S. Howey
  - Faith M. Williams

Representatives of the Association on Various Occasions:

- Inauguration of Franc Lewis McCluer as President of Lindenwood College
  - Roy Wenzlick

Inauguration of Ernest Herman Hahne as President of Miami University
  Simeon E. Leland
Inauguration of Robert Cecil Cook as President of Mississippi Southern College
  C. C. Dawson
Inauguration of Irvin Steward as President of West Virginia University
  Enoch H. Vickers
National Conference on UNESCO (Philadelphia, March 24-26, 1947)
  Ernest M. Patterson
  Karl R. Bopp
Centennial Convocation of Otterbein College
  Ivon W. Ulrey
Inauguration of Rosemary Park as President of Connecticut College
  Margaret H. Ely
Inauguration of Lyndon Osmond Brown as President of Knox College
  George J. Cady
Inauguration of George Dinsmore Stoddard as President of the University of Illinois
  James Washington Bell
Installation of Paul H. Appleby as Dean of the Maxwell Graduate School of Citizenship and Public Affairs, Syracuse University
  Harvey W. Peck
Mountain-Plains Regional Conference on UNESCO
  Fitzhugh L. Carmichael
  Morris E. Garnsey
  Alonzo B. May
Inauguration of Raymond Bernard Allen as President of the University of Washington
  Howard H. Preston

Mailing List. The use of the mailing list was granted to the following:

American Management Association
  To send out monograph by Ernest Dale, "Annual Wages and Employment Stabilization Techniques," and catalogues of A.M.A. publications
Columbia University
  To announce School of International Affairs
Science Service
  To offer special rate to members for subscription to *Science News Letter*
Duke University School of Law
  To announce issue of *Law and Contemporary Problems* containing symposium on "Labor Dispute Settlement"
International Bank for Reconstruction and Development
  To send documents published by the Bank
Teaching Institute of Economics, American University
  To inform members about conferences on the teaching of economics
M. W. Drexler Book Company
  To announce books on economics

It is with regret that the names of the following persons have been removed from our active membership list, notice of their deaths having been received during the year:

Edward D. Allen
Jay Otis Ball
Charles C. Bauer
Howard Berolzheimer
Adelbert J. Canfield
Otto F. Carpenter
Charles F. Creswell
Kenneth Duncan
Ivan V. Emelianoff
William D. Ennis
Herman Feldman
Irving Fisher (Life Member)
Bela Földes (Honorary Member)
Carl A. Fryxell
Seymour S. Garrett
William H. Glasson
T. Bertrand Graham
Waldo E. Grimes
Otto Jeidels
Alan Lanyon
Daniel B. Luten
Hugh D. McMurray
William Malone
Theodore Marburg (Life Member)
Eliot G. Mears
Rolf Nugent
Alexander Pekelis
John M. Redpath
Edwin C. Robbins
Leo Rogin
Victor H. Stempf
Jerome Tanenbaum
Benjamin B. Wallace
Sidney Webb (Honorary Member)
Louis D. H. Weld

Respectfully submitted,
JAMES WASHINGTON BELL, *Secretary*

EXHIBIT I
PUBLICATION COSTS

Year*	PROCEEDINGS Number of Pages	Number of Copies	Cost	HANDBOOKS Number of Pages	Number of Copies	Cost
1930	222	4,300	$1,353.91			
1931	308	4,300	1,919.18	88	4,200	$ 589.54
1932	316	4,200	1,819.75			
1933	216	4,000	1,284.85	88	3,900	522.71
1934	232	3,700	1,192.91			
1935	248	4,000	1,347.88			
1936	360	4,200	2,037.90	58	4,100	454.36
1937	344	4,300	1,922.03			
1938	200	4,500	1,234.10	112	4,500	1,118.84†
1939	288	4,600	1,785.91			
1940	444	4,900	2,658.12	108	5,000	822.58
1941	479	5,200	3,294.45			
1942	548	5,400	3,909.79	208	5,500	1,775.72†
1943	535	5,500	3,652.56			
1944	470	5,800	3,350.40			
	144	5,900	1,215.22‡			
1945	536	6,400	4,502.84			
1946	960	6,700	8,149.90	143	6,900	2,035.71
1947	781	7,700	8,140.79			

* This is the year of publication and pertains to the meeting of the preceding year. The figures are published in the subsequent year.

† "Who's who" volumes.

‡ Part of papers presented at annual meeting published as supplement to June number.

EXHIBIT II

MEMBERS AND SUBSCRIBERS

	Total 12/7/46	Added	Removed	Gain or *Loss*	Total 12/6/47
Annual members	4,376	759*	281†	478	4,854
Junior members	153	317‡	147§	170	323
Family members	68	23	6	17	85
Complimentary members	21	9	6	3	24¶
Life members	31		2	*2*	29
Honorary members	13	3	2	1	14
	4,622	1,111	444	667	5,329
Subscribers	2,161	650	613	37	2,198
Complimentary subscribers		2		2	2
Totals	6,823	1,763	1,057	706	7,529

* Includes 54 junior members changed to annual.

† Resigned, 50; nonpayment, 127; died, 31; lack of address, 46; changed to junior, 27.

‡ Includes 27 annual members changed to junior.

§ Includes 54 junior members changed to annual.

¶ Includes 8 complimentary members who do not receive the publications of the Association.

REPORT OF THE TREASURER OF THE ASSOCIATION FOR THE YEAR ENDING DECEMBER 6, 1947

The American Economic Association is not a profit-making enterprise. Our policy has been and continues to be to operate at a "break-even point," giving our members full benefit of the Association's income and resources. A backlog of investment holdings permits us to utilize fully current income from all sources and even to run temporary deficits for undertakings that seem particularly worth while.

Total income for the fiscal year ending December 6, 1947, amounted to $46,039, expenses were $46,829, leaving an operating loss of $790. Since our members and subscribers averaged around 7,300 for the year, it cost about $6.50 ($46,800 ÷ 7,300) for $5.00 dues or subscriptions for all services rendered. We actually lose money on junior membership, since printing alone costs over $3.50 per member. Thus we subsidize our members to the extent that our income from investing, advertising, and sales permits us to spend more than $5.00 per capita on our activities.

Operating Results. The chief sources of income and expenditures for the fiscal year ending December 7, 1946, and December 6, 1947:

Income	December 7, 1946	December 6, 1947	Increase or *Decrease*
Membership dues	$22,076	$25,366	$ 3,290
Subscriptions	$10,082	$10,543	$ 461
Sales	1,265	1,399	134
Advertising	2,798	3,654	856
Publications income	$14,145	$15,596	$ 1,451
Interest	$ 1,214	$ 1,227	$ 13
Dividends	2,441	2,910	469
Sale of securities (net)	4,187	1,056	*3,131*
Investments (less fees)	$ 7,734	$ 5,077	$ *2,657*
Total income	$43,955	$46,039	$ 2,084
Expenses			
Office salaries	$ 6,889	$ 8,239	$ 1,350
Annual meeting	1,091	1,400	309
Executive Committee	1,027	1,094	67
Other committees	573	129	*444*
Miscellaneous	1,644	3,178	1,534
Administrative and operating	$11,224	$14,040	$ 2,816
Review printing	$10,968	$15,798	$ 4,830
Papers and Proceedings	10,185	8,141	*2,044*
Editorial office (*Review*)			
Contributors	1,590	1,761	171
Editorial and clerical salaries	5,432	6,391	959
Miscellaneous	682	698	16
Publications	$28,857	$32,789	$ 3,932
Total expenses	$40,081	$46,829	$ 6,748
Net operating income or *loss*	$ 3,873	$ *790*	$ *4,663*

Committee Appropriations. During the past three years appropriations have been made for the following committees: Teaching, Research, *R.O.E.*, and Public Issues. The amounts appropriated, expenditures during the current year, and the unexpended balance are shown in the following table.

ANALYSIS OF FUNDS APPROPRIATED

	Amounts Appropriated	Expended During Period	Unexpended Balance
1. Committee on Teaching*	$ 2,000.00	$ 800.00	$ 1,200.00
2. Committee on Research†	1,500.00	774.22	725.78
3. Committee on *R.O.E.*‡	7,700.00	4,822.99	2,877.01
4. Committee on Public Issues	1,000.00		1,000.00
Totals	$12,200.00	$ 6,397.21	$ 5,802.79

* Original appropriation (1945) $1,000.00, of which $600.00 was spent in 1945; $1,000.00 was appropriated in 1946 and $200.00 spent that year; none spent in 1947.

† Original appropriation (1945) $1,500.00, of which $1,176.50 (unexpended) was carried over in 1946, during which year $238.17 was spent. The balance of $938.33 was carried over in 1947, of which $212.55 was spent.

‡ Original appropriation of $5,000.00 was changed to $7,500.00 in 1946, and to $7,700.00 in 1947.

The chief sources of income, as shown in the accompanying table, are from dues, publications, and investments. Expenses exceed income and are larger than last year, chiefly because of increased costs of printing and paper, administration and operations, and the annual meeting. The small increase in salaries and wages is significant in view of the heavy load we are carrying. No handbook or directory was published this year, which accounts for a reduction of some $2,000 below 1946 for the *Papers and Proceedings* item. On the other hand, certain nonrecurring expenses have been assumed, such as the sculptor's fee for the Walker and Clark medals, moving, and partial financing of the *R.O.E.* volume. Additional expenses for which commitments have been made and have yet to materialize, e.g., for striking the Walker and Clark medals and the appropriations, are shown in the analysis of funds appropriated and in the accounts payable items in the statement of financial condition. When all these items are taken into consideration, the net accounting loss for the period is shown to be $4,490; and the unappropriated surplus which was $68,888 at the beginning of the period decreased, as of December 6, 1947, to $64,523 (see Auditor's Report, Exhibit 1). This latter figure is the important one to look at in planning future expenditures. If our expenditures exceed current income and impair our financial backlog, we should measure new expenditures against the unappropriated surplus figure.

Realizing that costs have been rapidly increasing, some have proposed upping our dues. Nearly all other associations have found it necessary to increase dues. Our dues have remained at the $5.00 level ever since 1913, when they were increased from $3.00, and it is not our intention to raise them at present. Other, more logical, sources of revenue are available. For instance, we are this year doubling our advertising rates. Although we are distributing the 1948 *Directory* free to our members, a charge will be made for this volume to subscribers. The annual meetings can be made to pay their way. These meetings are becoming increasingly costly. It may prove desirable to charge a small registration fee, enough to cover some of the larger expenditures, such as printing and distributing the preliminary and final programs, badges, and publicity. Those attending these meetings are the chief beneficiaries and should contribute to direct costs.

Financial Condition. Comparative balance sheet figures are given below for December 7, 1946, and December 6, 1947.

Assets	December 7, 1946	December 6, 1947	Increase or *Decrease*
Cash in banks and on hand	$ 5,602	$ 10,436	$ 4,834
Receivables (less doubtful accounts)	2,015	1,952	*63*
Inventory (at nominal value)	1	1	
Prepaid expenses	1,348	564	*784*
Investments at cost			
Bonds	37,964	37,964	
Stocks	47,423	48,756	1,333
Furniture and fixtures	570	488	*82*
	$94,923	$100,161	$ 5,238
Liabilities			
Accounts payable	$ 3,621	$ 9,219	$ 5,598
Allied Social Science Associations	829	829	
Income tax withheld	84		*84*
Deferred income	8,976	14,819	5,843
Membership extension fund	1,402	1,308	*94*
Fund for proposed secretariat	35	35	
Committee funds appropriated (not spent)	7,338	5,803	*1,535*
Life memberships	3,750	3,625	*125*
Surplus			
Balance at beginnnig of period	66,015	68,888	2,873
Net income or *loss* for period	2,873	*4,490*	*7,363*
Transfers from life memberships		125	125
	$94,923	$100,161	$ 5,238

The status of our investment holdings is reported in the Finance Committee Report. The sales and purchases are indicated there, which show that we have sold some of our holdings for $7,542, at a profit of $1,056, and with the proceeds have purchased $6,761 worth of new securities. In effect, then, we have put $781 back into the general funds of the Association. This is in addition to the interest and dividends of $4,137.

The cost of our present holdings is slightly more than a year ago ($86,720 compared to $85,386 for 1946) and the market value even larger ($95,398 compared to $93,682 for 1946). The rate of return on our stocks and bonds has averaged 4.77 per cent on cost. This is still a good yield and is probably higher than we can expect next year.

Respectfully submitted,
JAMES WASHINGTON BELL, *Treasurer*

INVESTMENT PORTFOLIO

Year	At Par	Cost			Market
	Bonds	Bonds	Stocks	Total	Stocks and Bonds
1925	$25,000	$24,601.75		$24,661.75	
1926	27,000	26,623.25		26,623.25	
1927	29,000	26,688.45		28,688.45	
1928	29,000	28,633.45		28,633.45	
1929	31,000	30,569.48		30,569.48	
1930	31,000	32,439.48		32,439.48	$32,635.40
1931	39,500	39,134.48		39,134.48	32,307.44
1932	40,500	41,134.48		41,134.48	33,239.70
1933	33,500	32,962.48	$ 3,954.23	36,916.71	31,522.50
1934	31,500	30,989.48	3,954.23	34,943.71	34,714.00
1935	16,000	15,280.48	28,114.50	43,394.98	50,338.72
1936	17,000	16,260.13	33,712.57	49,972.70	62,991.00
1937	20,000	19,160.91	37,399.20	56,560.11	52,064.75
1938	22,000	20,180.95	38,302.20	58,483.15	58,598.88
1939	22,000	20,039.57	41,155.95	61,195.52	61,529.38
1940	25,000	22,519.80	41,155.95	63,675.75	60,553.88
1941	25,000	22,439.81	51,155.95	63,595.76	58,606.11
1942	27,000	24,651.12	41,556.06	66,207.18	58,211.88
1943	28,000	23,822.54	40,071.31	63,893.85	66,012.12
1944	30,000	25,731.51	46,033.81	71,765.32	81,844.01
1945	40,000	36,705.95	44,955.81	81,661.76	103,574.76
1946	40,000	37,964.08	47,422.89	85,386.97	93,682.61
1947	40,000	37,964.08	48,755.67	86,719.75	95,398.25

RETURN ON INVESTMENTS

Year	Bonds	Stocks	Total	Rate of Return on Cost
1925	$1,350.00		$1,350.00*	
1926	1,410.00		1,410.00*	
1927	1,524.70		1,524.70†	
1928	1,642.77		1,642.77†	
1929	1,575.44		1,575.44†	
1930	1,695.21		1,695.21	5.22%
1931	1,886.81		1,886.81	4.82
1932	2,014.36		2,014.36	4.89
1933	1,679.49	$ 108.57	1,789.06	4.84
1934	1,593.13	218.07	1,811.20	5.18
1935	1,022.96	680.70	1,703.66	3.92
1936	801.77	1,597.63	2,399.40	5.00
1937	884.87	2,689.62	3,574.49	6.31
1938	928.04	2,063.02	2,991.06	5.11
1939	978.79	1,781.52	2,760.31	4.51
1940	1,037.56	2,182.46	3,220.02	5.06
1941	1,088.97	2,497.35	3,586.32	5.64
1942	1,306.49	2,186.17	3,492.66	5.28
1943	1,133.97	2,094.47	3,228.44	4.90
1944	992.67	2,410.57	3,403.24	4.60
1945	1,479.99	2,488.85	3,968.84	4.71
1946	1,213.65	2,441.13	3,654.78	4.30
1947	1,227.31	2,909.85	4,137.16	4.77

* Estimated income for year.

† Certificate of deposit interest included.

REPORT OF THE FINANCE COMMITTEE

The table following summarizes the status of our investment holdings as of November 27, 1946, October 16, 1947, and December 31, 1947.

INVESTMENT ACCOUNT

	Cost of Holdings			Market Value		
	11/27/46	10/16/47	12/31/47	11/27/46	10/16/47	12/31/47
Bonds	$37,964.08	$37,130.08	$37,964.08	$38,484.85	$36,821.87	$36,190.00
Stocks	47,422.89	47,751.65	48,755.67	55,197.76	57,195.88	59,208.25
	$85,386.97	$84,881.73	$86,719.75	$93,682.61	$94,017.75	$95,398.25

During the past fiscal year the following purchases and sales were made.

Sales	Cost	Sale (net)	Profit or *Loss*
12 Shares Standard Brands	$ 852.62	$ 328.29	$ *524.33*
25 Shares Union Carbide and Carbon Corporation	1,433.94	2,658.44	1,224.50
50 Shares Gulf Oil Corporation	3,106.25	3,475.62	369.37
Houston Lighting and Power Company stock rights	35.47	21.94	*13.53*
	$5,428.28	$6,484.29	$1,056.01

Purchases	Cost
50 Shares Monsanto Chemical Company	$3,120.74
10 Shares National Dairy Products	310.85
80 Shares Standard Oil Company of Indiana	3,329.47
	$6,761.06

Respectfully submitted,

Roy C. Osgood, *Chairman*
Charles C. Wells
James Washington Bell

STOCKS

		Value Market or Last Sale		
Number of Shares of Preferred Stock	Cost	11/27/46	10/16/47	12/31/47
25 Crane Co., 3 3/4% Cum. Pfd.	$2,550.00	$2,525.00	$2,612.50	$2,418.75
14 Glidden Co.	735.00	577.50	728.00	735.00
25 International Harvester Co.	3,686.63	4,537.50	4,487.50	4,075.00
Number of Shares of Common Stock				
25 Chesapeake and Ohio Ry. Co.	1,309.07	1,293.75	1,125.00	1,087.50
55 Commonwealth Edison Co.	1,525.51	1,787.50	1,615.63	1,485.00
50 General American Transportation Corp.	3,084.30	2,462.50	2,887.50	2,925.00
100 General Electric Co.	2,738.19	3,450.00	3,725.00	3,575.00
50 General Motors Corp.	2,057.47	2,506.25	2,981.25	2,912.50
116 Glidden Co.	1,635.72	2,349.00	2,871.00	2,987.00
50 Gulf Oil Corp.	3,106.25	3,025.00	3,512.50	3,775.00
100 Houston Lighting and Power Co. .	3,202.03	4,300.00	2,175.00	4,150.00
100 Kroger Co.	3,703.47	5,925.00	5,075.00	4,625.00
25 Liggett and Myers Tobacco Co. ..	2,018.13	2,356.25	2,243.75	2,212.50
50 Link-Belt Co.	2,524.15	2,412.50	2,787.50	3,150.00
50 Monsanto Chemical Co.	3,120.74			3,050.00
10 National Dairy Products Corp. ...	310.85			290.00
75 J. C. Penney Co.	1,110.38	1,037.50	1,087.50	3,225.00
50 Procter and Gamble Co.	2,459.72	2,900.00	3,450.00	3,475.00
80 Standard Oil Co. of Indiana	3,329.47			3,430.00
25 Union Carbide and Carbon Corp.	1,433.94	2,250.00	2,668.75	2,575.00
100 Wayne Pump Co.	3,114.65	3,475.00	3,550.00	3,050.00

BONDS

Amount	Issue	Int.	Due	Cost	Value Market or Last Sale 11/27/46	 10/16/47	 12/31/47
$3,000	Chicago and North Western Ry., 2nd Mtge.	4½%	1999	$2,431.50	$2,370.00	$1,923.75	$1,912.50
2,000	Grand Trunk Western Ry. Co., 1st Mtge., 50-year	4	1950	1,855.45	2,092.50	2,067.50	2,010.00
3,000	Illinois Central R. R., St. Louis Div.	3	1951	2,212.50	2,797.50	2,970.00	2,925.00
3,000	New York Central R. R., Ref. and Imp., Series "A"	4½	2013	2,437.50	2,257.50	2,137.50	2,010.00
5,000	New York, New Haven and Hartford R. R. Co., 1st and Ref. Mtge., Series "A"	4	2007	4,755.00	4,393.75	3,250.00	3,350.00
1,000	Pennsylvania R. R. Co., Gen. Mtge., Series "D"	4¼	1981	986.50	1,125.00	951.25	980.00
1,000	Pere Marquette Ry. Co., 1st Mtge.	3⅜	1980	1,000.00	1,035.00	1,012.50	995.00
1,000	Reading Co., 1st and Ref., Series "D"	3⅛	1995	1,010.00	975.00	930.00	835.00
3,000	U. S. Defense Bonds, Series "G"	2½	1954	3,000.00	3,000.00	3,138.75	3,093.75
3,000	U. S. Government	2	1953/51	3,000.00	3,063.60	3,070.31	3,041.25
8,000	U. S. Treasury Bonds	2½	1972/67	8,000.00	8,200.00	8,197.50	8,020.00
7,000	U. S. Treasury Bonds (12/15)	2½	1972/67	7,275.63	7,175.00	7,172.81	7,017.50

REPORT OF THE AUDITOR

December 19, 1947

Executive Committee
American Economic Association
Evanston, Illinois

DEAR SIRS:

In accordance with instructions we have examined the accounts and related records of the American Economic Association for the period December 8, 1946, to December 6, 1947, and now submit our report thereon together with the following exhibits:

Balance Sheet—December 6, 1947	Exhibit 1
Statement of Income and Expenses for the Period December 8, 1946, to December 6, 1947	Exhibit 2

Results from Operations

Net loss for the period December 8, 1946, to December 6, 1947, was $4,490 compared with net income for the period ended December 7, 1946, of $2,873 as shown in the following summary:

Particulars	Dec. 12, 1945 to Dec. 7, 1946	Dec. 8, 1946 to Dec. 6, 1947	Increase *Decrease*
Income:			
Dues	$22,076	$25,366	$3,290
Interest and dividends	3,547	4,021	474
Profit on sales of securities	4,187	1,056	*3,131*
Total income	$29,810	$30,443	$ 633
Expenses:			
Administrative and other operating expenses	$11,224	$14,040	$2,816
Publication expenses	28,857	32,789	3,932
Publication income	*14,144*	*15,596*	*1,452*
Total expenses	$25,937	$31,233	$5,296
Net operating income or *loss*	$ 3,873	$ *790*	*$4,663*
Appropriations for special committees	1,000	3,700	2,700
Net income or *loss*	$ 2,873	$ *4,490*	*$7,363*

The increase in dues reflects the increase in membership during the period under review, as reported by the Secretary:

Classification	Number of members Dec. 7, 1946	Number of members Dec. 6, 1947
Regular	4,376	4,854
Junior	153	323
Family	68	85
Life	31	29
Honorary	13	14
Complimentary	21	24
Totals	4,662	5,329

Interest on bonds owned was accounted for in accordance with stated rates; dividends received on stocks were compared with amounts reported in published records of dividends paid. Stocks costing $5,428 were sold for $6,484.

Net publication expense, as shown in the following summary, amounted to $17,193 for the current period compared with $14,713 for the preceding period.

Particulars	Dec. 12, 1945 to Dec. 7, 1946	Dec. 8, 1946 to Dec. 6, 1947	Budgetary Estimates for Calendar Year 1947
Expenses:			
Printing of—			
Review	$10,968	$15,798	$13,500
Proceedings	10,185	8,141	—
Editor's honorarium	2,344	2,489	2,500
Payments to contributors	1,590	1,761	1,600
Editorial clerical salaries	3,088	3,902	3,800
Editorial supplies and expenses	661	641	350
Sundry publication expenses	21	57	—
Total expenses	$28,857	$32,789	
Less—Income:			
Subscriptions, other than members	$10,082	$10,543	
Sales of copies	1,264	1,399	
Advertising	2,798	3,654	
Total income	$14,144	$15,596	
Net publication expense	$14,713	$17,193	

The December, 1947, issue of the *Review* had not been printed at the time of our examination. The publishers of the *Review* have estimated the expense of printing 8,100 copies at $4,650 and this figure is included in the costs above.

Changes during the period ended December 6, 1947, in Committee Funds Appropriated (not expended) are analyzed below:

Fund	Unexpended Balance Dec. 7, 1946	Appropriations or *Expense* During Period	Unexpended Balance Dec. 6, 1947
Committee on Contemporary Development, Economic Thinking and Infortion	$5,000.00	$2,700.00 *4,822.99*	$2,877.01
Committee on Research	938.33	*212.55*	725.78
Committee on Undergraduate Teaching of Economics and Training of Economists	1,400.00	*200.00*	1,200.00
Committee on Public Issues	—	1,000.00	1,000.00
Totals	$7,338.33	*$1,535.54*	$5,802.79

Financial Condition

Condensed balance sheets of the Association at December 7, 1946, and December 6, 1947, are compared below:

Assets	Dec. 7, 1946	Dec. 6, 1947	Increase *Decrease*
Cash on deposit and on hand	$ 5,602	$ 10,436	$4,834
Receivables, net	2,015	1,952	*63*
Inventory of *Economic Essays*—at nominal value	1	1	—
Prepaid expenses	1,348	564	*784*
Furniture and fixtures, net	570	488	*82*
Investments at cost—			
Bonds	37,964	37,964	—
Stocks	47,423	48,756	1,333
	$94,923	$100,161	$5,238

Liabilities	Dec. 7, 1946	Dec. 6, 1947	Increase *Decrease*
Accounts payable	$ 3,621	$ 9,219	$5,598
Allied Social Science Associations	829	829	—
Income tax withheld from employees	84	—	*84*
Deferred income	8,976	14,819	5,843
Membership extension fund	1,402	1,308	*94*
Fund for proposed secretariat	35	35	—
Committee funds appropriated (not expended)	7,338	5,803	*1,535*
Life memberships	3,750	3,625	*125*
Surplus—			
Balance at beginning of period	66,015	68,888	2,873
Net income or *loss* for period	2,873	*4,490*	*7,363*
Transfers from life memberships	—	125	125
	$94,923	$100,161	$5,238

Cash on deposit was satisfactorily reconciled with balances confirmed directly to us by the depositories.

The receivables of the Association were not confirmed by correspondence with debtors. Based upon the Association's past experience, the reserve for doubtful accounts appears to be adequate to cover normal losses.

Changes in the investment accounts were vouched by examination of broker's invoices and other supporting data. Securities held were confirmed directly to us by the State Bank and Trust Company of Evanston, Illinois, custodian for the Association.

Insofar as we were able to ascertain, all liabilities of the Association at December 6, 1947, are reflected in the accompanying balance sheet and the secretary has represented to us that to the best of his knowledge all liabilities are disclosed.

We wish to take this opportunity to express our appreciation of the courtesies and co-operation extended to our representatives during the course of the examination.

Very truly yours,
David Himmelblau & Co.
Certified Public Accountants

EXHIBIT 1

AMERICAN ECONOMIC ASSOCIATION

BALANCE SHEET—DECEMBER 6, 1947

Assets

CURRENT ASSETS:		
Cash on deposit and on hand—		
State Bank and Trust Company, Evanston	$ 3,201.51	
National Bank of Commerce of Chicago	7,209.10	
Petty cash	25.00	$ 10,435.61
Receivables—		
Review advertising	$ 974.54	
Interest accrued on bonds	514.10	
Publication sales	243.48	
Membership dues	432.50	
Sundry	28.50	
Total receivables	$ 2,193.12	
Less—Reserve for doubtful accounts	240.60	1,952.52
Inventory of *Economic Essays*—at nominal value		1.00
Total current assets		$ 12,389.13
PREPAID EXPENSES:		
Unexpired insurance	$ 279.69	
Inventory of stamps and envelopes	284.65	564.34
INVESTMENTS AT COST:		
Bonds	$37,964.08	
Stocks	48,755.67	86,719.75
FURNITURE AND FIXTURES (less reserve for depreciation)		488.00
Total assets		$100,161.22

Liabilities, Funds and Surplus

CURRENT LIABILITIES:			
Accounts payable		$ 8,914.01	
Accrued salaries		304.71	
Allied Social Science Associations		829.44	$ 10,048.16
DEFERRED INCOME:			
Prepaid subscriptions		$ 4,530.71	
Prepaid dues		10,288.58	14,819.29
MEMBERSHIP EXTENSION FUND			1,308.21
FUND FOR PROPOSED PERMANENT SECRETARIAT			35.00
COMMITTEE FUNDS APPROPRIATED (not expended)			5,802.79
LIFE MEMBERSHIPS AND SURPLUS:			
Life memberships		$ 3,625.00	
Unappropriated Surplus—			
Balance December 7, 1946	$68,887.87		
Life memberships transfers	125.00		
	$69,012.87		
Net *loss* for period December 8, 1946 to December 6, 1947 (Exhibit 2)	*4,490.10*	64,522.77	68,147.77
Total liabilities, funds and surplus			$100,161.22

EXHIBIT 2

AMERICAN ECONOMIC ASSOCIATION
STATEMENT OF INCOME AND EXPENSES
FOR THE PERIOD DECEMBER 8, 1946 TO DECEMBER 6, 1947

Particulars				Amount
INCOME:				
Dues—				
Regular, junior and family members			$25,105.93	
Subscribing and contributing members			260.00	$25,365.93
Investments—				
Interest and dividends:				
Interest on bonds		$ 1,227.31		
Dividends		2,909.85		
		$ 4,137.16		
Less—Custodian fees		116.32	$ 4,020.84	
Gain on sale of stocks (net)			1,056.01	5,076.85
Total income				$30,442.78
EXPENSES:				
Administrative and other operating expenses—				
Secretary's salary		$ 2,489.59		
Office salaries		5,749.94		
Annual meeting (net)		1,400.21		
Executive Committee expenses		1,093.92		
Other committee expenses		129.08		
Walker and Clark medals		700.00		
Postage expense		617.10		
Stationery and supplies		521.66		
Insurance expense		172.28		
President's expense		127.76		
Provision for depreciation		96.02		
Telephone and telegraph		88.07		
American Council of Learned Societies—dues		75.00		
Exchange on checks		46.35		
Review moving expenses		309.70		
Miscellaneous—net		423.62	14,040.30	
Publication expenses—				
Printing of:				
Review		$15,797.50		
Proceedings		8,140.79		
Editor's honorarium		2,489.39		
Payments to contributors		1,760.75		
Editorial clerical salaries		3,901.88		
Editorial supplies and expenses		641.55		
Sundry publishing expense		57.24		
Total publication expenses		$32,789.10		
Less—Publication income:				
Subscriptions, other than members	$10,543.44			
Sales of copies	1,398.99			
Advertising	3,654.09	15,596.52	17,192.58	
Total expenses				31,232.88
Net operating loss				$ *790.10*
ADDITIONAL APPROPRIATIONS:				
Committee on Economic Thinking			$ 2,700.00	
Committee on Public Issues			1,000.00	3,700.00
Net loss (Exhibit 1)				$ *4,490.10*

REPORT OF THE MANAGING EDITOR FOR THE YEAR ENDING DECEMBER, 1947

After being located at Cornell University during the academic year 1946-47, the editorial office of the *Review* was returned to Washington, D.C., in June, 1947, due to my acceptance of a position with the Council of Economic Advisers. During the summer, office space was provided through the courtesy of the Social Science Research Council. When it was necessary to move in the autumn, the George Washington University was kind enough to provide an office for the time being. For making this arrangement, the *Review* is indebted to Professor Arthur E. Burns. Since it is not certain that the present arrangement can be continued indefinitely, it will be necessary for the Executive Committee to consider the matter of authorizing arrangements for more permanent quarters as and when necessary.

At the last meeting of the Executive Committee the managing editor was authorized to provide free subscriptions to the *Review* to departments, research institutions, or libraries in foreign countries where its presence would be valuable but could not be arranged on a regular subscription basis due to lack of funds or foreign exchange. Advantage has been taken of this to provide copies to a fairly small number of European universities and inquiries are out with respect to a number of others.

In my last report I mentioned the steps being taken to secure correspondents in foreign countries for the purpose of securing current bibliographical information and copies of important books deserving to be reviewed for the benefit of American economists. Three additions to the list of correspondents have been made during the past year and correspondence is under way with respect to the appointment of others.

To further improve the international coverage of the *Review*, cards were circulated to members of the Association during the year to build up a list of reviewers with special knowledge of foreign languages and of the economies of particular countries. There was a gratifying response and the *Review* is now in the position of being able to secure the reviewing of books from almost any country through its own membership.

The past year has not seen the great increase in the flow of manuscripts which was anticipated and the number handled was little more than in the preceding year. While a sufficient number have been received to maintain a reasonably high level of contents in the *Review*, there has been no excess of good manuscripts and, therefore, not very much competition for entry into its pages. To a large degree the manuscripts published have been unsolicited, but as usual a number have been prepared and submitted on timely topics through editorial initiative.

A statistical summary of the contents of the *Review* in 1947, with corresponding figures for 1946, is presented below, exclusive of the *Proceedings:*

	1947		1946	
	No.	Pages	No.	Pages
Leading articles	24	430	28	518
Communications	33	151	28	113
Book Reviews	134	294	92	202
Memorials	4	14	4	9
Classified list of new books		48		49
Classified list of periodical articles		29		23
Classified list of dissertations		21		15
Notes		61		51
		1,048		980

It will be noted that space assigned to leading articles declined by 88 pages but, on the other hand, the space devoted to communications increased by 38 pages and that devoted to book reviews by 92 pages. Articles, communications and book reviews were contributed by 163 persons, as compared with 131 in 1946.

The following table presents the actual expenditures in 1947 in comparison with the estimated budget and with actual expenditures in 1946.

	Budget 1947	Actual 1947	Actual 1946
Printing and mail	$13,500.00	$15,764.94*	$11,223.91
Editorial	2,500.00	2,500.00	2,500.00
Clerical	4,000.00	3,982.21	3,240.20
Supplies	350.00	510.92	420.24
Contributors	1,600.00	1,760.75	1,590.55
	$21,950.00	$24,518.82	$18,974.90

* Estimated.

Actual expenditures exceeded the budget estimate by $2,568.82. Of this, excess costs of printing and mailing amount to $2,264.94. The following unbudgeted costs account for the excess: increased costs of paper above the contract figure accounted for $768.55; additional copies printed in March, June, and September above the budgeted number of 7,300 came to $508.00; the December number was issued under a revised contract which added an estimated $600.00; these various items add up to $1,876.55. The remainder of the excess is accounted for by the production of a volume somewhat larger than the 1,000 net pages upon which the estimate was based. It will be seen that apart from the unforeseeable extra costs, the magazine was produced for little more than the budget estimate.

The remainder of actual cost above the budget is accounted for by payments to contributors of $160.75 in excess of the budget estimate due to the size of the volume above the original estimate and by higher costs for supplies, incidental moving expenses, binding back volumes of the *Review*, etc., amounting to $160.92.

On the basis of a new printing contract entered into between the Secretary of the Association and the George Banta Publishing Company, the cost of printing during 1948 will be substantially above that in 1947. It is estimated by the printer that the cost of the December number will be approximately $4,720.00. Since this represents an issue of 256 pages, plus 14 pages of index, it is somewhat larger than a normal size of 250 pages. One may therefore estimate, on the basis of the present printing of 8,200 copies, that the cost will be about $4,400.00 per number or $17,600.00 for the year. This is approximately $1,850.00 above the costs for 1947. This estimate stands only upon the assumption that extra costs above the contract price for paper will not be imposed during the coming year. It also does not take account of any increase in the number of copies printed.

The costs of printing are shown by quarters in the following table.

	Copies printed	Pages		Cost*
		Net	Gross	
March	7,600	286	324	$4,008.71
June	7,900	247	288	3,415.48
September	8,100	259	288	3,620.75
December	8,200	256	—	4,720.00†

* After deducting cost of reprints sold.
† Estimated.

On the basis of printing cost stated above, I recommend the following budget for 1948:

Printing (paper, postage, reprints, etc.)	$17,600.00
Editor's salary	2,500.00
Editorial assistance	4,000.00
Supplies	450.00
Contributors	1,650.00
	$26,200.00

This budget is $1,681.00 above the actual total costs for 1947, accounted for entirely by increased costs of printing.

In view of the substantial increase in cost I am not this year presenting again the proposal for changing the format of the *Review*. I wish, however, to state my continued dissatisfaction with the present format and the hope that in the very early future the finances of the Association will permit the added expense of improved format to be undertaken. This point will be brought up for consideration at the spring meeting of the Executive Committee.

During the year the Board of Editors has consisted of K. E. Boulding, P. T. Ellsworth, R. A. Gordon, B. U. Ratchford, L. H. Seltzer, and A. Smithies. The duties of the members of the Board of Editors are anything but nominal and without the assistance which they regularly give in the screening of manuscripts the burden on the Managing Editor would be quite unbearable.

As of December 31 the terms of K. E. Boulding and P. T. Ellsworth expire and it will be necessary for the Executive Committee to appoint successors to them.

Respectfully submitted,
PAUL T. HOMAN, *Managing Editor*

REPORT OF THE GENERAL COMMITTEE ON REPUBLICATIONS

During the course of the present calendar year the Association has renewed its contract with the Blakiston Company of Philadelphia for the continuation of the series of republished articles, which now includes volumes on the Control of Industry, Business Cycle Theory, and the Theory of Income Distribution. Publication of the volume on the Theory of International Trade, which was announced in the report of a year ago for the present year, has been delayed by the preoccupation of both its editors with the forthcoming *Review of Economics*—one as its editor and one as a contributor. However, the International Trade collection should go to the publishers within the first few months of 1948. The bibliography is now finished; the list of twenty-four items is settled, with the exception of three or four marginal cases; and requests for permission to print have been sent to most of the authors and some of the publishers.

Appended to the present report is a tabulation of results of the questionnaire mailed to the Association membership concerning promising titles for future volumes of republished articles. A total of 510 replies was received, of which nearly 43 per cent is embraced in the first three subjects, and nearly 62 per cent under the first ten subjects. Unless there shall appear good reason for suspecting a decided shifting of interest, these replies should provide the committee with an objective guide as to popular subject matter for the next three or four collections. The file of replies, arranged under the several subjects, includes also suggestions offered by the membership as to editors.

Respectfully submitted,

Howard S. Ellis, *Chairman*
James Washington Bell
Friedrich A. Lutz

RESULTS OF THE QUESTIONNAIRE ON FUTURE VOLUMES IN THE A.E.A. SERIES OF REPUBLISHED READINGS

	Number of Times Suggested
Industrial Relations, Collective Bargaining, Unions, Labor Economics, Wages, Wage Theory	90
Public Finance, Government Finance, Taxation, Fiscal Policy, Public Debt	74
Monetary Theory, Money, Banking, Credit	53
Economic Planning, Comparative Economic Systems, Socialism, Capitalism, Managed Economy, etc.	21
History of Economic Thought or Doctrines, History of Economics	19
Full Employment	13
Statistics	12
Consumption, Consumer	12
Economic History	11
Theory of Prices and Value	11
International Finances, International Trade, International Economics	10
Transportation	10
Interest and Capital	9
Agricultural Policy	8
Economics of Various Regions, i.e., (a) Europe, (b) Latin America, (c) Far East, etc.	8
Monopoly	8
National Income	8
Nature and Scope and Method of Economics	7
Population Theory	7
Social Security	7

	Number of Times Suggested
Econometrics	5
Economic Development	4
Institutional Economics	4
Marketing and Market Analysis	4
Public Utilities	4
Welfare Economics	4
Accounting Principles	3
Economic Forecasting	3
Economics of Urban Areas	3
Insurance	3
Theory of Economic Change	3
Theory of Production	3
U.S.S.R.	3
Biographical Essays on Important Economists: (i.e. Keynes on Marshall, Schumpeter on Keynes, etc.)	2
Business Finance and Capital Formation	2
Commodity Economics	2
Economics of War Controls	2
Government Control	2
Economic Methodology and the Role of the Economist in Shaping Public Opinion (Theory and Social Policy)	2
Internal Problems of Corporations	2
Imperfect Competition	2
Housing	2
Lawyers and Economists, Legal Economics	2
Resource Conservation	2
Standards of Living	2
Teaching of Economics	2

The following subjects received one request each:

Business Cycle Theory
Control of Industry
A Volume of Keynesian Thought and Criticism
City Planning and Redevelopment
Development of Keynesian "General Theory" Doctrine
Disability and Health Insurance
Double Taxation
Economic Background of our Foreign Policy
Economic Basis of National Power
Economics of the Family
Economics and Industrial Growth
Economics and Other Social Sciences
Economic Significance of Free Trade Area
Economic Theory and Social Policy
Freedom of Enterprise
The Free Market Economy
Function of Profits
The Gold Standard
Inflation in Theory and Practice
International Reconstruction
Interstate Commerce Commission
Investments
Land Economics
Location Theory
Managerial Economics
Measurement of Economic Relationships
Monetary Experience
Monetary Institutions of Leading Countries
Postwar Economics
Profits
Readings in Colonial Policy Napoleonic Wars to World War I
Real Property Values and Rents
Reappraisals of Demand and Supply Concept
Secular Change
Structure of Industry
Theory of Demand
Theory of Marginal Productivity
Theory of Natural Resources
Theories re Savings

REPORT OF THE COMMITTEE ON THE *REVIEW OF ECONOMICS*

Since the chief activities of the Committee on the *Review of Economics* for the past year have been concerned with the production of the volume authorized to be published, the report of the committee consists of Professor Ellis' communication concerning the progress and description of this volume and his observations relating to future policy.

To Professor Joseph J. Spengler,
Chairman of the Review of Economics Committee
of the American Economic Association.

DEAR PROFESSOR SPENGLER:

I should like to report upon the present situation with regard to *A Review of Economics: Recent Developments in Analysis and Policy.* All of the thirteen essays, as announced on pages 754-755 of the September, 1947, issue of the *American Economic Review,* had come into my hands by December 1, though some of them had been received in first draft form as early as May. I now have eleven of the thirteen in final draft, except in some cases for the clearing up of some points by an exchange of letters. Of these eleven, the first drafts of five were accepted after extended revision to take account of points raised by critics and editor; four others were more or less completely rewritten; and two others went to a third draft. Of the two not now in my hands in virtually final form, one—received in first draft on December 1—is still in the hands of the critics; and the other is one being written by the author for the fourth time.

I expect to forward to Blakiston final copy of most of the essays at the end of the first week in January, taking advantage of their offer to begin work without waiting for the two or three "last dogs"; and to have all copy in by the end of January. The publisher is aiming at six months for production, but has confessed that under present conditions it may require nine months.

I am fairly confident that readers and critics of this volume will find that it fulfills very well three of its four announced objectives, relative to economists outside a particular field, to economists in government service, and to foreign economists. They will probably find that it serves less well the fourth objective of explaining economics to "social scientists, business leaders, journalists, and statesmen." Many contributors found —more or less inevitably—that it was not possible to compass this objective and still present an adequate survey and appraisal of a difficult subject within the assigned limits of 25-55 printed pages for trained economists. In case of doubt, I let the latter objective prevail.

On the whole the essays move on a very high level of scholarly thoroughness and sophistication, of mature judgment, and of lucid exposition. Some make substantial positive contributions, and some are brilliantly written. With only one or two exceptions, I believe they will be eminently worthy of the fiduciary position into which the Association has put these authors.

For the benefit of the record and possible successors, I should like to set down two or three convictions arising from my own experience.

1. Reviews of this sort should probably not appear more frequently than at five-year intervals. Much of the merit of the undertaking lies in the perspective given by time alone.
2. The use of officially designated critics is invaluable: a single editor cannot possibly dispose over sufficiently expert knowledge and judgment for more than a few fields.
3. A limited amount of space should be allotted to each critic for his appraisal of the *final* draft of each essay. The outside economist should be given a fair idea as to what are matters of common agreement, and what arise from the idiosyncrasy of the individual author.
4. A budget of something like the present one is highly desirable. Undoubtedly, if the venture proves successful, a commercial publisher could be found to finance the whole undertaking. But I am certain that honoraria paid from the Association's funds count with contributors, critics, and editors much more heavily than ordinary royalties.

In a brief introduction to the book, well-deserved thanks should be given to the thirty-nine contributors and critics on behalf of the Association for their sustained efforts, open-mindedness, and promptness in discharging obligations. To the Chairman of the *Review of Economics* Committee and his collaborators, the Association owes the original inspiration and the arduous efforts leading to the present volume.

Sincerely yours,
HOWARD S. ELLIS

A Review of Economics

(Recent Developments in Analysis and Policy to be published
under the auspices of the American Economic Association)

I. *Origin*

In April, 1945, the Executive Committee of the American Economic Association established a Committee on the Development of Economic Thinking and Information to plan a periodic *Review of Economics.* This committee, under the chairmanship of J. J. Spengler, has worked actively in the intervening period, and the present project is the result of several plans and adaptations. The constitution of the *Review of Economics* Committee is now as follows: J. J. Spengler, Chairman; James Washington Bell, Eveline M. Burns, Corwin D. Edwards, Paul T. Homan, W. Blair Stewart, Aryness J. Wickens, and A. B. Wolfe. The present plan, approved by the Executive Committee, January 23-26, 1947, provides for a volume of about 550 pages, financed by an appropriation of $7,700.

II. *Purposes*

1. To acquaint economists generally with the recent development of fields other than their own.
2. To present to other social scientists, business leaders, journalists, and statesmen an understandable account of changes in the character of economic thinking.
3. To assist economists in government administration to keep in touch with the evolution of economic analysis in its various aspects.
4. To make available to foreign scholars, long cut off by the war, a synoptic view of the recent evolution of economics in the United States.

III. *Character of the Volume*

Contributors are asked to make the exposition readily understandable to the general economist outside the particular field and as accessible to the intelligent lay reader as possible. The essays will refer to statistical and other types of empiric evidence as an integral part—along with theory—in the aggregate of economic analysis. They will trace the influence of recent economic analysis upon public policy and the reflection upon economic thinking of recent events and trends, structural changes, and new policies and institutions. Before publication, the manuscript of each essay will be submitted to two critics; but the comments of the critics will be directed to the editor and contributors and will not be published.

IV. *Publication*

The *Review of Economics* will be published by the Blakiston Company of Philadelphia and will be available to members of the American Economic Association at a substantial discount from the list price. It is contemplated that the volume will appear in the spring publication list of 1948.

A Review of Economics

Edited by Howard S. Ellis (University of California)

(Names of critics are listed under each essay)

I. *Value and Distribution,* by Bernard F. Haley (Stanford)
  E. H. Chamberlin (Harvard)
  J. M. Clark (Columbia)

II. *Full Employment and Business Cycles,* by William Fellner (California)
  Gottfried Haberler (Harvard)
  Alvin Hansen (Harvard)

III. *Monopoly and the Concentration of Economic Power,* by John K. Galbraith (*Fortune* Magazine)
  R. A. Gordon (California)
  A. D. H. Kaplan (Brookings)

IV. *Price and Production Policies,* by Joe S. Bain (California)
  Joel P. Dean (Columbia)
  Don H. Wallace (Princeton)

V. *Federal Budgeting and Fiscal Polices,* by Arthur Smithies (Bureau of the Budget)
  Lawrence H. Seltzer (Wayne)
  James K. Hall (Washington)

VI. *International Economics,* by Lloyd Metzler (Chicago)
  James W. Angell (Columbia)
  Jacob Viner (Princeton)

VII. *Economics of Labor,* by Lloyd Reynolds (Yale)
  Clark Kerr (California)
  Sumner H. Slitcher (Harvard)

VIII. *National Income Analysis,* Carl Shoup (Columbia)
  M. A. Copeland (National Bureau of Economic Research)
  E. E. Hagen (Bureau of the Budget)

IX. *Monetary Theory,* by Henry H. Villard (Hofstra)
  Edward S. Shaw (Stanford)
  Elmer Wood (Missouri)

X. *Dynamic Process Analysis,* by Paul A. Samuelson (Mass. Inst. of Technology)
  Friedrich A. Lutz (Princeton)
  Fritz Machlup (Johns Hopkins)

XI. *Econometrics,* by Wassily Leontief (Harvard)
  Joseph A. Schumpeter (Harvard)
  W. Allen Wallis (Chicago)

XII. *Socialist Economics,* by Abram Bergson (Columbia)
  A. P. Lerner (New School)
  Frank D. Graham (Princeton)

XIII. *The Prospects of Capitalism,* by David McCord Wright (Virginia)
  Frank H. Knight (Chicago)
  Paul M. Sweezy (Williams)

REPORT OF THE COMMITTEE ON HONORS AND AWARDS

This committee has been assigned responsibility for surveying the list of possible candidates for the Walker and Clark medals, for submitting a panel of nominees for each of these medals to a special electoral college, and for serving with the officers of the Association and the other members of the Executive Committee of the Association as members of the electoral college by which the final selections are to be made. In our present report we submit nominations for the consideration of the electoral college.

In surveying the field of possible nominees for the Francis A. Walker silver medal, we have borne in mind the terms of the award established by the Executive Committee. This medal, which is not to be bestowed more frequently than once every five years, is to be awarded to a "living American economist who has in the course of his life made a contribution of the highest distinction to economics." Awards of this medal are to be made for "contributions to the central body of economic thought and knowledge. They are not to be made for excellence in teaching, administration, or public service. Neither are they to be made for contributions to special branches of economics, except insofar as they may contribute vitally to general economic doctrine and knowledge."[1]

The John Bates Clark bronze medal is to be awarded biennially to "that American economist under the age of forty who is adjudged to have made the most significant contribution to economic thought and knowledge." Contributions considered are to be those that augment "the central body of economic thought and knowledge."[1]

In the course of the committee's considerations a question arose as to the desirability of extending the age limit for future Clark awards to forty-five rather than forty. The votes on the proposal that we make such a recommendation to the Executive Committee were three in favor, three against. We do not, therefore, make this recommendation, but we believe that the Executive Committee should be informed of the fact that the question was raised and the vote taken.

Biographies of the nominees for the Clark award have been prepared with the generous assistance of the Secretary of the Association. These are now in the hands of the Secretary.

Respectfully submitted,
FREDERICK C. MILLS, *Chairman*
STUART DAGGETT
FREDERIC B. GARVER
CALVIN B. HOOVER
RAYMOND T. BYE
THEODORE W. SCHULTZ

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[1] Nominations for these awards were submitted in the report.

REPORT OF THE COMMITTEE ON PUBLIC ISSUES

The Committee on Public Issues has held two meetings: in New York on June 5 and in Chicago on December 30. It has also done much work by correspondence.

At the meeting in June the committee considered matters of basic policy. It was decided to establish several subcommittees to prepare statements on important issues of public policy. The members of the Committee on Public Issues believe that the subcommittees should be assigned topics of more or less lasting significance and that subcommittees should not be established for the purpose of preparing on short notice statements on matters of fleeting importance. The interests of the Association and of the community would not be served by hastily prepared and ill-considered reports written under pressure to meet a given date line. The Committee on Public Issues has prepared a statement of instructions to the subcommittees. That statement is attached to this report and is made a part of it. As this statement indicates several of the policy decisions of the Committee on Public Issues, I quote several extracts from it:

> 1. The report [of the subcommittee] should be addressed to the thoughtful and intelligent layman, but it should reflect the expert knowledge of specialists in the field.
>
> 2. The statement should be brief, preferably not longer than 5,000 words. This is not a rigid rule. Each subcommittee will expected to use its own judgment. In view of the audience for which the statements are intended, however, brevity is likely to enhance the influence of the report.
>
> 3. The main object of the report should be to define and analyze issues, not to state conclusions.
>
> ……
>
> 4. The reports should, in the main, summarize existing knowledge and opinion, but they should also call attention to the main gaps in important and relevant information.
>
> ……
>
> 7. The Committee on Public Issues will assume general editorial responsibility for the reports of the subcommittees. The committee, in its discretion, will ask for reviews of the report by other specialists in the field. . . .
>
> 8. The committee is under instructions to transmit the reports of the subcommittees to the President of the American Economic Association who shall have authority to decide whether or not to give the results publicity and at what time.

Two subcommittee have been established—one on the problem of economic stability, the second on the problem of international commercial policy. The personnel of these subcommittees is as follows:

Subcommittee on the Problem of Economic Stability
- Donald H. Wallace, Princeton University, Chairman
- Milton Friedman, University of Chicago
- Albert G. Hart, Columbia University
- Paul A. Samuelson, Massachusetts Institute of Technology
- Emile Despres, Williams College

Subcommittees on the Problem of International Commercial Policy
- Paul W. McCracken, Minneapolis Federal Reserve Bank, Chairman
- Klaus E. Knorr, Yale University
- Paul T. Ellsworth, University of Wisconsin
- Frank W. Fetter, Northwestern University

The subcommittees have had preliminary meetings and have started their work. It is expected that the reports of these subcommittees will be in the hands of the President of the Association by early autumn and that the Executive Committee of the Association will be in a position to judge the results of this experiment at its meeting in next December.

In one important respect the Committee on Public Issues has made a change in the views expressed in instructions to the subcommittees. In those instructions the hope was expressed that the subcommittees might be able to complete their reports by holding one meeting in addition to the meeting held at the time of the general meeting of the American Economic Association. The Committee on Public Issues believes that each subcommittee will need to hold several meetings. There are ways of keeping down the expense of such meetings to the Association. Nevertheless the Committee on Public Issues believes that the minimum amount on which the Subcommittee on the Problem of Economic Stability should attempt to operate is $500. The Committee on Public Issues has allocated that amount from its funds to this subcommittee. This should suffice to meet the travel and expense for three one-day meetings. The Subcommittee on the Problem of International Commercial Policy has been asked to prepare a time schedule and a tentative schedule of meetings. It is probable that the Committee on Public Issues will allocate $300 or $400 of its funds for the use of this latter subcommittee.

As the Committee on Public Issues was given a grant of $1,000, the operation of the two subcommittees already established will virtually exhaust the funds at the disposal of the Committee on Public Issues. Thus far the committee has been able to operate with little expense to the Association.

The Committee on Public Issues is preparing a list of problems for which additional subcommittees might be established. This list includes:

1. Federal Policy on Patents and on the Stimulation of Technical Research
2. The Concentration of Economic Power—Formulating of Basic Issues
3. Basic Issues in National Labor Policy
4. The Problem of Credit Control
5. The Conservation of Natural Resources

The Committee on Public Issues is not in a position to create any additional subcommittees until the Executive Committee provides funds for this purpose. An allowance of roughly $500 should be made for each subcommittee. The Executive Committee may prefer to await the reports of the two present subcommittees before putting additional Association money into the experiment. The Committee on Public Issues believes, however, that there is much to be said in favor of establishing two additional subcommittees and recommends that the Executive Committee consider the advisability of appropriating $1,000 for this purpose. If two subcommittees were established within the next four or five weeks, their reports would probably be available by next December.

Respectfully submitted on behalf of the Committee,

SUMNER H. SLICHTER, *Chairman*

INSTRUCTIONS TO THE SUBCOMMITTEES OF THE COMMITTEE ON PUBLIC ISSUES

The Committee on Public Issues of the American Economic Association was authorized at the meeting of the Executive Committee of the Association in March, 1947. The committee was instructed, with the approval of the President and the Secretary, to devise and carry out a specific plan of operations. Among other things the committee is authorized to arrange for the preparation of statements on issues of public policies. The committee proposes to appoint a small number of *ad hoc* subcommittees of qualified economists to prepare statements on important issues of public policy.

The committee offers the following suggestions for the guidance of the subcommittees:

1. The report should be addressed to the thoughtful and intelligent layman, but it should reflect the expert knowledge of specialists in the field.

2. The statement should be brief, preferably not longer than 5,000 words. This is not a rigid rule. Each subcommittee will be expected to use its own judgment. In view of the audience for which the statements are intended, however, brevity is likely to enhance the influence of the report.

3. The main object of the report should be to define and analyze issues, not to state conclusions.

The Committee on Public Issues is aware that economists frequently differ in their views on public policies. The committee, in instituting subcommittees, endeavors to get the major points of view represented in them. The committee does not anticipate, therefore, that the members of subcommittees will ordinarily agree on the desirability of any particular policy. The committee does trust that the subcommittees will be able to agree on a statement of the issues involved and on the implications of alternative courses of action. The reports may well canvass the principal proposals embodying different lines of policy and summarize the arguments advanced by their respective proponents and opponents. The committee is primarily concerned that readers of the report shall find that it substantially helps them to reach their own conclusions. Therefore, the primary emphasis of these reports should be on clear and incisive analyses of the issues. It is the hope of the committee that statements can be prepared which will be useful to Congress in formulating legislation and to editorial writers in commenting on proposed measures.

4. The reports should, in the main, summarize existing knowledge and opinion, but they should also call attention to the main gaps in important and relevant information.

5. Each subcommittee shall determine its own method of operation. Each subcommittee should feel free to submit tentative drafts of its report to noncommittee members for criticism and review before submitting it to the Committee on Public Issues.

6. The Committee on Public Issues hopes that the subcommittees will be able, in the main, to do their work by correspondence. The committee hopes to make available sufficient funds to permit one meeting by members of each

subcommittee. In view of the fact that the funds at the disposal of the committee are limited, it is hoped that the subcommittees may be able to arrange a meeting at a time and place when at least one member can travel on a non-Association expense account. A second meeting may in some instances be timed to occur at the general meeting of the American Economic Association.

7. The Committee on Public Issues will assume general editorial responsibility for the reports of the subcommittees. The committee, in its discretion, will ask for reviews of the report by other specialists in the field or, in some cases, by persons with a broader interest in general economic and social theory. The committee may then return the reports to the subcommittees for amplification, clarification, or for the purpose of enabling the subcommittees to carry out (or, perhaps, repudiate) any suggestions which the committee deems worthy of consideration.

8. The committee is under instructions to transmit the reports of the subcommittees to the President of the American Economic Association who shall have authority to decide whether or not to give the results publicity and at what time.

REPORT OF THE COMMITTEE ON THE UNDERGRADUATE TEACHING OF ECONOMICS AND THE TRAINING OF ECONOMISTS

In the report that we submitted to you last January at Atlantic City, we made the following—as it now appears, somewhat rash—statement: "The committee aims, by the time of the next annual meeting of the Association, to have completed the work in which it now is engaged. More concretely, we plan to have in order and ready for publication the general report of our committee and the several special reports of our subcommittees."

We regret to report at this time that our intentions—in fact, our expectations—are far short of realization. Our work has not remained dormant during the past eleven months, but it has proceeded much more slowly than we had planned that it should. Our recent experience, both as mistaken prophets and with regard to the conditions that underlie the slowing down of our work, make us reluctant to promise the completion of our present task within the year that lies ahead. We expect to complete our several reports as rapidly as we can, but with full knowledge that there will, unavoidably, be some unevenness in the rates at which our several groups will proceed.

The slowing down of our work commenced as long ago as the fall of 1946. Prior to that time, two of our subcommittees had submitted completed reports that were still subject only to acceptance by the committee and by members of our panel of consultants, and, in the case of one report, to the composing of some differences among members of the subcommittee. Several conferences and a round table had been held with some resulting publication. Since that time many of our members, and many also of the numerous colleagues on whom we have depended for information and for help, have been so occupied with immediate affairs of their respective departments and institutions that they have not had a sufficient surplus of time and energy to press forward the work of the committee as rapidly as we had hoped. Two or three of our valued members have offered their resignations on the ground that they had insufficient time for the work that should be done, but have agreed to remain members with the understanding that their duties to the committee might be deferred in time.

Several of our exploratory groups, especially the Subcommittee on Interdepartmental Introductory Courses in the Social Sciences, and that on Undergraduate Economics in Preparation for Careers in Public Service and in Business Administration, recently have pushed their work forward along interesting lines. It appears now that the latter subcommittee will have a draft of a rather striking portion of its report ready for distribution to members of the Executive Committee at the Chicago meeting. Mr. Tolles, Chairman of the Subcommittee on the Training of Teachers of Economics, developed and directed a second Conference on the Teaching of Economics in Washington last August. Mr. Boulding, Acting Chairman, during Miss Newcomer's absence, of the Subcommittee on the Undergraduate Economics Curriculum and Related Areas of Study held a meeting of that group, in Ithaca in September, for further consideration of its report. An additional subcommittee on Visual and Auditory Apparatus for the Teaching of Economics, with Mr. K. William Kapp, of Wesleyan University, as its Chairman, has been organized. During the recent period the committee has continued to serve as a channel for the discussion, largely through correspondence, of questions connected with the teaching of economics.

Following a suggestion of President Douglas, some inquiries have been made as to the desirability of a series of regional conferences on the teaching of economics, to be organized by this committee. Some interest has been expressed, but, due to pressures of work that interfere with participation in such conferences, it is not yet clear that prospective attendance would justify such conferences.

The reports we have submitted at the last three annual meetings of the Association have laid out, in some detail, our organization and our plans. Our report made at Cleveland in 1946 described the work we had in view. Our report made at Atlantic City was a fairly full description of the development and progress of this work. The present report, which is less extensive and less formal, merely supplements those earlier ones.

For the Committee,
Horace Taylor, *Chairman*

REPORT OF THE COMMITTEE ON CLASSIFICATION

The appointment of the committee was authorized at the spring meeting of the Executive Committee, 1946, "to review the several specialized classifications of the fields of economics and, if possible, to prepare a revised classification of subject matter which will be useful for general purposes, both with respect to personnel and to the literature of economics."

President Goldenweiser appointed the committee for the immediate purpose of revising the classification of economists for the 1948 *Directory*. The last edition of this volume appeared in 1942, and since it is not likely to be redone for some years hence, the classification of our members according to their fields of interest and specialization is "frozen" for quite a period of time. The members of the committee are conscious of the responsibility and have made every effort to perfect a draft which will divide economics into its principal subdivisions, recognizing as we must that many equally attractive combinations exist and that logic must often give way to precedent or general acceptance in defining fields.

No meetings of the committee have been possible. The work of revision has been carried on by correspondence. No fewer than four drafts have been gone over by members of the committee. The last one, which is reproduced below, has had a wider circulation among members of the Executive Committee and past presidents, *et al.*, and from this draft we hope to adopt a final form which will be used in connection with the 1948 *Directory*. We plan to try it out first before sending out the questionnaires to our 5,500 members. We know that it will lack perfection and will appreciate suggestions from members for improving it.

Respectfully submitted,
JAMES WASHINGTON BELL, *Chairman*
MORRIS A. COPELAND
FRANK W. FETTER
PAUL T. HOMAN
FRITZ MACHLUP
JOSEPH J. SPENGLER

REDRAFT OF CLASSIFICATION OF FIELDS OF ECONOMICS

(For use in classifying both personnel and literature.)

1. *Economic Theory; General Economics*
   This field includes subject matter of general interest with specialized subdivisions:
   a) General, i.e., nonspecialist; texts and other comprehensive items
   b) Theory
   c) History of Theory
   d) Mathematical Economics
2. *Economic History; National Economies*
   a) Economic History
   b) National Economies
      National Economies or area studies (economics of particular countries or regions) is attached here because of its accepted affinity. Items emphasizing economic problems belong in special fields; e.g., agriculture, labor, finance.

3. *Statistics and Econometrics*
   a) Statistical methods
   b) Econometrics (mathematical-statistical analysis)

   This field is designed to include measurements, techniques of observation and analysis, records and their quantitative analysis. Emphasis is on methodology rather than the application to special areas; e.g., prices, production, money, trade, agriculture, labor, national income. *Mathematical Economics* belong under Group I rather than in this group; and *Accounting* (theory and practice) is included in Group 11 under *Business.*

> The above three fields represent the methodological group; that is, they represent methods of dealing with economic problems analytically, historically, and quantitatively. The subdivisions which follow supply the subjects to which these techniques are applied, some involving greater emphasis of one technique than another, but none so intimately tied up with an appropriate methodology as to warrant considering it a subhead.

4. *Economic Systems; Planning and Reform; Co-operation*
   a) Economic Systems and Policies
   b) Planning and Reform
   c) Co-operation

      Co-operation concerns subject matter falling within several fields and cross reference may be made to Group 11 (*Business Administration*), Group 12 (*Public Policies*), and Group 17 (*Social Welfare*).

   Since so few economists specialize in the subject of *National Economic Systems and Policies,* some consider it desirable to link this field with Group 1 (*Economic Theory*). The weight of opinion, however, seems to favor making a separate heading of the field dealing with capitalism, socialism, communism, and the other "isms," or grouping it with the *Planning* and *Co-operation,* as is done here.
5. *National Income and Social Accounting*

   Many critics would prefer to classify national income and wealth, investment, and consumer spending in Group 3 (*Statistics,* etc.), but others would put it in Group 1 (*Theory*) or in Group 6 (*Business Fluctuations*). It seems best, at least for the time being, to mobilize studies and economists interested in the various aspects of *National Income* into a separate group.
6. *Business Fluctuations*

   This field includes business conditions and forecasting. It embraces the study of all types of fluctuations of economic and business factors, however treated; e.g., theoretical, historical, or statistical. As in Group 5 (*National Income*), this area embraces subject matter falling within other areas; hence, distinctions will often rest on emphasis, e.g., "full employment" might fall here or under *Public Finance, Money and Banking, Labor,* or in some other applied subject-matter field; "price behavior" might fall under 1, 2, 3, etc.—wherever prices are considered, which means literally all fields in economics.

> The above three fields, i.e., *Economic Systems, National Income,* and *Business Fluctuations,* are again a cognate group related to the methodological subjects (*Theory, Economic History,* and *Measurements*) but are more closely allied to problems of policies and processes; hence fall logically between the first three groups and those which are to follow. These connective fields represent a general, aggregative, or macrocosmic approach to the study of economics. They combine methods and application.
>
> The fields which follow represent conventional and not altogether logical subdivisions or segments. The force of convention dictates their general acceptance and it is not possible to take great liberties in modifying them.

7. *Money and Banking; Short-term Credit; Consumer Finance*
8. *Business Finance; Investments; Security Markets; Insurance*
9. *Public Finance*

> Group 7, 8, and 9 fall under a broader class, namely, finance, but no attempt is made to pull these together except in the order of their enumeration. This group reverts to the August 11 draft since the revision of November 26 which included *Business Finance* with other commerce subjects (11) under one heading promised to prove unwieldy.

10. *International Economics*
11. *Business Administration* (excluding *Business Finance;* see 8)
    a) Business Organization, Administration, Methods, and Management

- b) Marketing and Advertising
- c) Accounting

The subheads indicate the character of this field. They concern the internal business aspects of our economy and are usually considered as commerce subjects.

12. *Industrial Organization and Markets; Public Regulation of Business*
    - a) Industrial Organization and the Theory of the Markets; Competition and Monopoly
    - b) Public Regulation and Control of Business; Public Administration; Operation in War and Peace

    This is one of the most difficult of all groups to define. It pertains to the external rather than the internal operations and policies.
13. *Public Utilities; Transportation; Communication*
14. *Industry Studies*
    - a) Manufacturing
    - b) Construction (*Housing*, cf. 15 and 17)
    - c) Service Industries
15. *Land Economics; Agricultural Economics; Economic Geography*
    - a) Land Economics; Conservation of Natural Resources
    - b) Agricultural Economics; Forestry and Fisheries
    - c) Mining and Minerals
    - d) Economic Geography; Regional Planning
    - e) Urban Land; Housing (cf. 14 and 17)
16. *Labor*
17. *Population; Social Welfare and Living Standards*
    - a) Population; Migration and Vital Statistics
    - b) Relief, Public Welfare, Pensions
    - c) Social Security (Insurance)
    - d) Consumption Economics (*Housing*, cf. 14 and 15)

      In strict logic *Consumption Economics* belongs wherever the consumption function is found; e.g., in 1 (indifference curves, consumer surplus, etc.), in 5 (consumer spending), in 7 (consumer finance); general association and accepted practice, however, warrants separate classification here.

Pattern of Classification of Fields of Economics

Methodology	*General*	*Special*
(Analytical, historical, quantitative)	(Aggregative or macrocosmic approach—connective subjects—methods and application)	(Segments or applied fields—conventional subdivisions)
		7. Money and Banking, etc.
		8. Business Finance, etc.
		9. Public Finance
	4. Economic Systems; Planning and Reform; Co-operation	10. International Economics
1. Economic Theory		11. Business Administration
2. Economic History; National Economies		12. Indus. Org.; Pub. Reg.
	5. National Income, etc.	13. Public Utilities, etc.
3. Statistical Methods	6. Business Fluctuations	14. Industry Studies
		15. Land Economics, etc.
		16. Labor
		17. Social Welfare, etc.

REPORT OF OUR REPRESENTATIVE ON THE AMERICAN COUNCIL OF LEARNED SOCIETIES

The Executive Committee, at its spring meeting, approved the proposed draft revision of the A.C.L.S. constitution. The other constituent societies having done likewise, a reorganization of the Council became effective with the old Executive Committee and Advisory Committee acting as a temporary Board of Advisers. Dr. Cornelius Krusé took over the directorship in October, succeeding Professor Richard H. Shryock who had served as Acting Director during the interval following Dr. Waldo G. Leland's retirement. Dean William De Vane has been serving as Chairman of the Council for the past year. The new Board of Directors and other officers were elected in January, 1948, at the annual meeting of the Council held at Rye, New York. Thus the reorganization has been completed smoothly and without interruption of the normal operations of the Council. The new constitution provides for one delegate only from each of the constituent societies upon the expiration of the term of the second representative.

The activities of the Council are varied and committees are set up to administer projects in the various fields of the humanities. Other projects are referred directly to constituent societies. The total budget, including administration, assistance to scholars, specially supported projects, fiscal agency activities on behalf of the government, amounted to approximately $500,000. Not many of these projects are of direct interest to members of the American Economic Association. However, two or three developments should be noted.

A proposal was made at the last annual meeting to set up a number of panels within the Council dealing with various phases of the Council's work; namely, personnel, publications, international cultural relations, underworked fields of study, humanities and social action, the humanities and the new communications, research and implementation. Authorization was voted to set up two or three panels during the ensuing year and it was suggested that co-operation between proposed panels and constituent societies might be possible.

At a joint meeting of the Council and the secretaries of the constituent societies, a request was made that reports be made in the nature of stocktaking, summarizing the present status of the respective disciplines represented. Some reports of this character have already been made. The *Review of Economics* volume and others which may follow may well be considered as our contribution to this effort.

Under an arrangement with the State Department, the Conference Board of the Associated Research Councils (A.C.L.S., S.S.R.C., National Research Council, and American Council on Education) will be responsible for the administration of certain segments of the Fulbright Act. Our part involves the selection of personnel at the postdoctoral level, while the Institution of Education will deal with the lower academic levels.

An ambitious project for the translation and publication of Russian materials has been undertaken and this project may be of interest to economists, since items of economic or near-economic character are to be included.

The meetings of the Conference of Secretaries of the Constituent Societies, of which J. W. Bell is President, are held concurrently and jointly with the Council. Matters important to the operations and policies of all the societies are discussed on these occasions. Such matters concern not only the administrative routine problems of running a society but also policy matters such as the exchange of information concerning public relations, publications, facilities for encouraging research, improvement of teaching, relations to foreign scholars. Apropos the last item, a resolution was passed at the last meeting of the Conference requesting the Council to make inquiry in foreign countries as to the status of the various disciplines represented in this Council and to prepare lists of professional personnel in these disciplines for distribution to the secretaries of the societies.

Another resolution requested the A.C.L.S. to explore the possibilities of centralized membership dues, book, and periodical exchange service with foreign countries where payment with money is difficult or impossible because of the differences in existing exchange regulations.

In discussing the need of broadening the financial base for the Council's support, the secretaries were asked to take up with their societies a proposal to increase their dues or contributions to the Council.

A proposal to publish an occasional news bulletin of the Council (paralleling the *Items* issued by the S.S.R.C.) was approved in principle. Pending the appearance of such an organ, the best source of information of the activities and operations of the American Council of Learned Societies is the Proceedings Number of the *Bulletin.*

Frank H. Knight
James Washington Bell
(Alternate to Joseph A. Schumpeter)

REPORT OF REPRESENTATIVE ON SOCIAL SCIENCE RESEARCH COUNCIL

In 1947, as in previous years, two meetings of the board of directors of the Social Science Research Council were held. At the September meeting considerable discussion was devoted to consideration of the future role and program of the Social Science Research Council, but no definitive course was plotted. In 1948 the resignation of Dr. Donald Young, the present executive director who has served the Council well for many years, will become effective. It is believed by some members of the Council that it can accomplish the many tasks that need to be done only if its resources are increased appreciably, and that effective steps must be taken to bring about such increase. Presumably, if there are to be significant changes in program, this will be made known in 1948.

The Council's program of research training and aid was expanded somewhat in 1947. Research training fellowships and grants-in-aid were offered as in the past. In addition there were established a limited number of predoctoral fellowships in economic history and a few postdoctoral fellowships which will permit two years of supplementary training in natural science to social scientists and two years of supplementary training in social science to natural scientists.

In 1947 the Council began publication of a small quarterly, *Items*, in which findings and activities of the Council are reported and its publications are announced. This useful periodical may be obtained from the New York office (230 Park Avenue). In the December number interesting findings regarding the recruitment of social science personnel and the ability of actual and potential graduate students in social science are summarised.

At present a number of committees are engaged in exploring, developing, and organizing research in particular fields. Each of these committees has published or probably will publish a report which may be obtained from the New York office. There follow the names of active committees engaged on projects of especial interest to economists: Agricultural Marketing Research; Economic History; Housing Research; Labor Market Research; Measurement of Opinion, Attitudes and Consumer Wants; Social Adjustment (projects on social psychiatry and social adjustment in old age); Social Aspects of Atomic Energy; Techniques for Reducing Group Hostility; World Area Research; and Government Records and Research. The names of the committees suggest the subject matter covered. Inquiries regarding them may be directed to the New York office.

A number of other Council projects are of interest to economists. The Council will shortly issue a report on the federal government and research in social science; it is also serving as fiscal agent for the preparation of a popular volume on the achievements of the social sciences during the war and on their potential contributions to society in the future. A short summary report on research organization in the social sciences at some fifty universities and colleges has been issued by the Committee on Organization for Research in the

Social Sciences. The Committee on Source Book of Historical Statistics reports that this study will soon appear; it is also considering a volume on summary measures of American development. The Committee on War Studies reports the completion and the imminent completion of a number of studies of American economic activity during the war period. The Council is assisting American geographers in their plans for a comprehensive appraisal and demonstration of the objectives and methods of geographic research. The Council is co-operating with the Civil Service Commission in the improvement of professional standards and the classification of federal social science positions; it is sponsoring a memorandum designed to clarify the role of the expert in government and business and so to facilitate the optimal use of social science knowledge in the conduct of practical affairs; and it is supporting a study of the effectiveness of the application of the knowledge of social relations.

The members of the American Economic Association are invited by the Council to suggest programs of work in need of sponsorship, to indicate improved methods of attacking problems, and to propose ways of facilitating research.

Respectfully submitted,
JOSEPH J. SPENGLER

REPORT OF OUR REPRESENTATIVE ON THE BOARD OF DIRECTORS OF THE NATIONAL BUREAU OF ECONOMIC RESEARCH

The National Bureau's studies were effectively advanced and extended in 1947. Work on several investigations that had been interrupted by the war was resumed and additional projects were planned and started as members of the staff returned from war service. During the year the Executive Committee approved the institution of a study of long-term changes in international economic relations of the United States. Nine reports appeared during 1947 and three were published in January-February, 1948.

In response to numerous requests from economists, teachers, and others, two earlier published volumes were reprinted in January, 1948. These were *National Income and Its Composition, 1919-1938,* by Simon Kuznets, and *Cost Behavior and Price Policy,* by the Committee on Price Determination of the Conference on Price Research.

The Conference on Research in Income and Wealth held its 1947-48 meeting on January 30 and 31, 1948. The meeting was devoted to the consideration of a number of papers dealing with problems of measuring the national wealth—physical assets and claims. Milton Gilbert was elected Chairman of the Executive Committee for 1948 to succeed Jacob Marschak.

The Executive Committee of the Conference, through a special subcommittee (Messrs. Copeland, Gilbert, Jaszi, Kuznets, Stitne), helped to found a new International Association for Research in Income and Wealth, on the occasion of the International Statistical Conference held in Washington, D.C., in September, 1947. Delegates from almost all participating countries expressed active interest in forming the new Association. A constitution was adopted and Simon Kuznets was elected Chairman.

During the year the Conference on Price Research, established in 1935, was dissolved by vote of its members. This action reflected inability to obtain funds to support a projected program which contemplated concentration of the activities of the conference over a period of years on the problem of the role of prices in a mixed economy. A committee of the conference is preparing as an epitaph a statement on problems in the price field which most need attention.

The Universities-National Bureau Committee held its first postwar meeting on November 28 and 29, 1947. The committee was first organized in 1935 as an agency for the advancement of economic knowledge and the stimulation of economic research through more effective liaison between universities and the National Bureau of Economic Research. It now includes representatives of the Universities of California, Chicago, Michigan, Minnesota, North Carolina, Pennsylvania, Texas, Toronto, and Wisconsin, Columbia University, Harvard University, Northwestern University, Stanford University, the National Bureau of Economic Research, the standing conferences created by the Universities-National Bureau Committee, and two members at large.

The 1947 meeting of the Universities-National Bureau Committee was devoted to consideration of a program of postwar activities. The program adopted includes the sponsorship of a series of special conferences, to be called annually or at longer intervals, focused on important research fields lying within the range of interests of the universities and the National Bureau. Topics provisionally listed for attention at the special conferences include: business cycle research; industry studies; economic development; productivity; and the behavior of wages. It is expected that each special conference will provide opportunity for an appraisal of the state of knowledge in the field under examination, clarification of concepts and sharpening of analytical tools and modes of measurement, and the designation of strategic areas for further research.

The Executive Committee of the Universities-National Bureau Committee elected at the 1947 meeting consists of Simon Kuznets, Chairman; J. Frederic Dewhurst, Secretary; John D. Black, Arthur F. Burns, and I. L. Sharfman.

Membership on the Board of Directors of the National Bureau was increased by four during the year: Corwin D. Edwards, by appointment of Northwestern University; G. A. Elliott, by appointment of the University of Toronto; Arthur H. Cole, by appointment of the Economic History Association; and Arthur F. Burns, as Director at Large.

Gottfried Haberler was elected in February, 1948, as Director by appointment of Harvard University to succeed W. L. Crum. Dr. Crum resigned his membership on the Board of Directors on January 31, 1948, upon his resignation from Harvard to accept an appointment at the University of California.

If any member of the American Economics Association desires to make suggestions with regard to the work of the National Bureau, the undersigned, who is a member of the Board of the Bureau by appointment of the Association, will be very glad to receive them.

Respectfully submitted,
DONALD H. WALLACE

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OF THE

AMERICAN ECONOMIC ASSOCIATION

1948

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No. 5 (February, 1941)

Fifty-third Annual Meeting (December, 1940):

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